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MOTOR AGE

VOLUME XVI CHICAGO, OCTOBER 14, 1909 NUMBER 16

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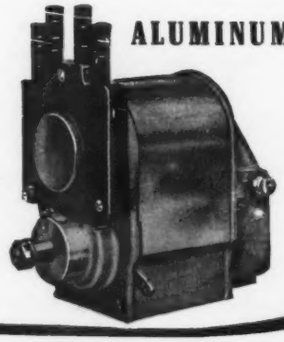

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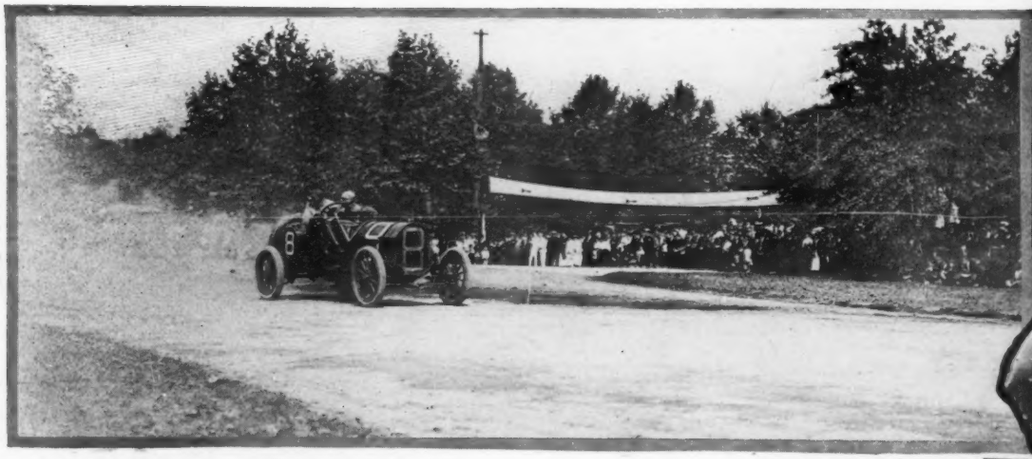
VOL. XVI., NO. 16 CHICAGO, OCTOBER 14, 1909 $3.00 PER YEAR

MOTOR AGE

Robertson Wins Philadelphia Race

PHILADELPHIA, Pa., Oct. 9—This afternoon, in the presence of the largest crowd that ever witnessed a similar spectacle in this country, if not in the world, George Robertson, in his 90-horsepower Simplex, won the 200-mile Fairmount park stock chassis race from a field including not alone the fastest cars made in America, driven by the most expert drivers the entrants could secure, but several representatives of the best efforts of foreign makers. Bert Dingley, in a 40-horsepower Chalmers-Detroit, was second, only 5 minutes behind Robertson. H. N. Harding, in a 49.2-horsepower Apperson, finished third, 8 minutes behind Dingley. Joe Parkin, a local product, drove his 60-horsepower Chadwick into fourth place after a bitter battle with Lewis Strang in an Isotta, who was beaten by a minute and a half by the Philadelphian, who, in

GEORGE ROBERTSON IN THE WINNING SIMPLEX—DINGLEY IN CHALMERS, SECOND PLACE—ZENGEL IN CHADWICK, FASTEST LAP



HARDING AND HIS MECHANIC LOOKING AROUND AFTER TAKING A TURN

GEORGE ROBERTSON

turn, finished over 3 minutes behind the Apperson.

In addition to the honors which go along with an impressive win under such favorable conditions, Robertson annexed $2,500 in gold and the $1,000 MacDonald & Campbell trophy. Dingley captured $1,250 in gold and a gold chronometer for the most consistent work. Along with third place Harding gathered in $750, while the plucky work of Parkin against a past master in the art of driving brought him $500 in the yellow metal.

Of the twenty-one cars that started five were permitted to finish, but when the referee's whistle blew, denoting that the show was over, there were four other cars still running. The Palmer-Singer was within sight of the tape on its final lap; Drach's American had gone twenty; the Benz twenty-one and the Selden seventeen.

A study of the table showing the lap positions of each of the cars is an interesting study. It discloses the fact that Chevrolet and Drach were the only ones ever ahead of Robertson at any stage in the race. The Simplex star took the lead in the fourth round and never relinquished it. Dingley never was worse than fifth and got to second in the fourteenth lap. Harding had a harder row to hoe, it requiring eighteen rounds of fighting for him to get to third place. Parkin got his final position in the twenty-second, where he shoved Strang down. Chevrolet started with his usual rush and was the leader at the end of the third round. Zengel was second from the fifth to the fourteenth, when he shifted back to ninth.

Robertson's victory is a great personal triumph, inasmuch as the Fairmount park 8-mile circuit is what might be termed a driver's course. There are no long straightaways on which a big, powerful car can be opened wide and thus mow down its less powerful competitors. Every car in today's race was capable of a mile-a-minute speed or better, but such a clip, if maintained over the sinuosities of the park roads that compose the course would soon bring to grief the driver who attempted it. Robertson averaged about 55 miles an hour, but withal nursed his car so carefully, that he was compelled to stop but once to remedy minor trouble and once for supplies. The fact that he guided a Locomobile to victory over the same course last year would seem to bear out the claim that it was a Robertson rather than a Simplex victory. Robertson's time last year was 4:02:30, which was a trifle under 50 miles an hour. The cut of 22:32⅕

TABLE OF RESULTS IN THE SECOND ANNUAL FAIRMOUNT PARK

No.	Car	H.P.	Driver	1	2	3	4	5	6	7	8	9	10	11
4	Simplex	90	Robertson.	8:33	17:4	25:24	33:55	42:25	50:57	59:31	68:09	76:55	85:31	95:17
					9:07	7:44	8:31	8:30	8:32	8:34	8:38	8:46	8:36	9:46
5	Chalmers	40	Dingley	9:12	18:00	26:57	36:28	44:47	53:46	62:50	71:50	81:01	89:56	98:54
					8:48	8:57	9:31	8:19	8:59	9:04	9:00	9.11	8:55	8:58
8	Apperson	49.2	Harding	13:33	23:06	32:55	41:27	50:38	59:45	68:51	78:02	87:35	96:33	105:30
					9:33	9:49	8:32	9:11	9:07	9:06	9:11	9:33	8:58	8:57
18	Chadwick six	60	Parkin	9:13	18:12	29:11	40:01	49:04	58:05	67:10	76:17	85:14	94:11	103:05
					8:59	10:59	10:50	9:03	9:01	9:05	9:07	8:57	8:57	8:54
17	Isotta	40	Strang	9:45	18:38	27:40	37:00	46:29	55:39	65:10	74:25	83:45	92:50	102:16
					8:53	9:02	9:20	9:29	9:10	9:41	9:15	9:20	9:05	9:26
10	P. & S. six	60	Wallace	9:13	18:18	28:28	41:30	51:05	60:20	69:41	79:18	88:49	98:24	108:15
					9 05	10:10	13:02	9:35	9:15	9:21	9:37	9:31	9:15	9:51
3	Benz	60	Howard	10:06	23:32	51:06	60:54	70 46	80:28	90:47	100:41	110:37	121:06	129:33
					13:26	27:34	9:48	9:52	9:42	10:19	9:54	9:56	10:29	8:27
1	Simplex	90	Betz	9:36	18:4'	27:50	36:53	46:30	55:06	64.12	73:14	82:22	92:32	100:26
					9:05	9:09	9:03	9:37	8:36	9:06	9:02	9:07	10.10	7:54
2	American	60	Drach	8:44	17:40	26:10	35:25	48:37	57:51	66:57	76:06	85:11	94:18	103:25
					8:56	8:30	9:15	13:12	9:14	9:06	9:09	9:05	9:07	9 07
9	Buick	30	Burman	18:20	28:27	36:42	45:15	53:36	62:12	70:37	114:50	123:31	131:53	146:25
					10.07	8:15	8:23	8:21	8:36	8:25	44:13	8:41	8:22	14:32
16	Chadwick six	60	Zengel	8:50	17:34	26:18	35:57	43:41	51:45	60:55	69:40	78:27	87:00	95:31
					8:44	8:44	9:39	7:44	8:08	9:10	8:45	8:47	8:33	8:31
23	Selden	36	Youngs	45:48	59:15	70:52	80:25	100:22	110:48	121:12	133 :24	143:58	154:16	164:41
					13 27	11:37	9:33	19:57	10:26	10:24	12:12	10:34	10:18	10:25
15	Thomas six	70	L. Bergdoll	9:24	18:28	37:16	46:50	56:27	67:13	82:55	92:39	103:04	147:52	164:21
					9 04	9:31	9:43	9:28	10:46	15:42	10:24	10:25	44:48	16:29
13	Buick	30	Chevrolet	8:40	17:02	25:21	61 56	76:59	86:12	95:19	104 :25	113:30	122:35	131:40
					8:22	8:19	36:35	15:03	9:13	9:07	9:06	9:05	9:05	18:10
7	Acme six	60	Leinau	13:23	27:44	53:56	70:06	80:47	89:56	118:12	185 :15	.....	.....	.....
					14:21	26:12	16:10	10:41	9:09	28:16	67:03	.....	.....	.....
12	American	60	Hayes	10:33	19:42	29:15	38:39	49:38	58:17	68:11	.....	.....	.....	.....
					9:09	9:33	9:24	10:59	8:39	9:54	.....	.....	.....	.....
19	Chalmers	40	Lorimer	9:40	18:31	27:36	45:38	.....	.....	.....	.....	.....	.....	.....
					8:51	9:05	8:02	.....	.....	.....	.....	.....	.....	.....
6	Thomas six	70	Haupt	13:44	36:20	47:19	.....	.....	.....	.....	.....	.....	.....	.....
					22:36	19:59	.....	.....	.....	.....	.....	.....	.....	.....
20	Welch six	70	E. Bergdoll	14:44	10:43	.....	.....	.....	.....	.....	.....	.....	.....	.....
					4:59	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	Columbia	32.4	Coffey	9:47	31:02	.....	.....	.....	.....	.....	.....	.....	.....	.....
					21:15	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	Lozier six	50	Seymour	With	drew	.....	.....	.....	.....	.....	.....	.....	.....	.....
						.....	.....	.....	.....	.....	.....	.....	.....	.....

* Still running when race called off

BERT DINGLEY

PARKIN IN CHADWICK AND CHEVROLET IN BUICK

in the time may be safely ascribed to the better course, the paring down of sharp corners, etc. On no other of the courses where big national contests are run off does the human element enter so conspicuously; thus it is that Fairmount park is called a driver's course, and thus it is that today's victory is distinctly a personal victory for the driver of the winning car.

Philadelphia and the Quaker City Motor Club today set a mark in big race management which other promoters may aim to approach; they can hardly excel it. Eighteen hundred policemen, 120 flagmen and umpires, a big corps of doctors and nurses with all the paraphernalia of their craft and miles and miles of rope made for the public safety. The whole problem of course-guarding was directly under the eye of Mayor Reyburn and the department of public safety, with Superintendent of Police Taylor doing the action stunt. That they succeeded in their task was manifest, for accidents in that mighty crowd where accidents were to be expected were few and far between, and even these were of a minor variety. It was not a case of luck, either; it was the result of the intelligent working out of a carefully prepared system of protection, with no taking of chances.

It may be safely stated that no other city in the country is so situated that it could hand over its property for a whole day for the purpose of providing a great public spectacle for its inhabitants. That an 8-mile course could be laid down in the park without interfering with the traffic rights of the public streets speaks volumes for the magnitude of that popular pleasure ground. And the location was such that the majority of the huge crowd was enabled to reach the course by the expenditure of 5 cents for car fare and something less than a half-hour's time. The success of the race has already set the enthusiasts talking of next year's contest; some of the more enthusiastic are urging semi-annual fixtures under the combined management of the city and the Quaker City Motor Club.

The only accident to a racing man came in the eighth lap, when No. 12 American, Hayes driver, was negotiating the combination S-hairpin at Sweet Brier mansion. The car skidded to the right and then to the left, landing against one of the ubiquitous telegraph poles without which no course seems complete. Hayes shut off and held on to the wheel, managing to stay with the car when the crash came.

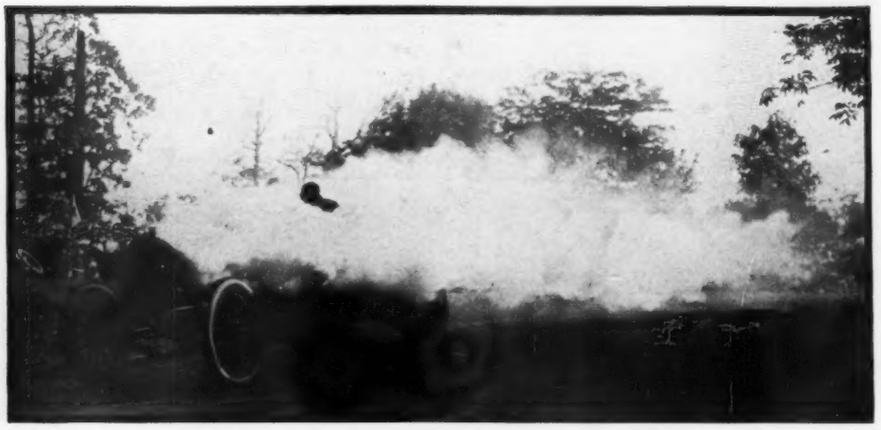
ROAD RACE AT PHILADELPHIA OVER 200-MILE COURSE

12	13	14	15	16	17	18	19	20	21	22	23	24	25
102:52 8:35	111:23 8:31	120:00 8:37	131:45 11:45	140:30 8:45	149:08 8:38	157:52 8:44	166:32 8:40	175:04 8:32	183:41 8:37	192:19 8:38	201:07 8:48	209:55 8:48	218:58½ 9:03½
107:51 8:57	116:53 8:56	125:54 9:01	134:52 8:58	143:49 8:57	152:48 8:59	161:49 9:01	170:44 8:52	179:46 9:05	188:34 8:48	197:30 8:56	206:23 8:53	215:24 9:01	224:20 8:56
114:33 9:03	123:29 8:56	133:10 9:41	141:17 8:07	150:03 8:46	158:53 8:50	167:54 9:01	178:34 10:40	187:38 9:04	196:38 9:00	206:34 9:56	214:26 7:52	223:13 8:47	232:17 7/10 9:04 1/10
111:56 8:51	120:47 8:51	129:45 8:58	138:53 9:08	153:08 14:15	162:00 8:52	170:50 8:50	180:06 9:16	190:39 10:33	199:38 8:59	208:33 8:55	217:33 9:00	226:36 8:57	235:31½ 9:01⅛
111:37 9:21	120:45 9:08	130:09 9:24	139:27 9:18	148:38 9:11	157:53 9:15	167:01 9:08	180:48 13:47	190:04 9:16	199:33 8:29	208:57 9:24	218:09 9:12	227:30 9:21	236:54⅔ 9:24⅔
117:28 9:13	127:33 9:55	144:20 16:57	153:39 9:19	162:32 8:53	171:32 9:00	182:37 11:05	191:31 8:54	200:20 8:49	209:09 8:49	217:59 8:50	226:41 8:42	237:15 10:34	*
141:04 11:31	150:31 9:27	160:31 10 00	170:30 9:59	180:24 9:54	190:22 9:58	200:20 9:59	210:19 9:59	220:25 10:06	230:31 10:06	*	.....	.....	.....
109:50 9:24	118:51 9:01	127:51 9:00	136:51 9:00	156:01 19:10	164:57 8:56	173:40 8:43	182:30 8:50	191:30 9:00	.....	.....	.....	.....	.....
115:10 11:45	124:22 9:12	141:54 17:52	189:49 47:55	199:19 9:30	208:46 9:27	218:10 9:24	227:30 9:20	237:01 9:31	*	.....	.....	.....	.....
155:04 8:39	163:34 8:30	175:54 12:20	184:46 8:52	193:42 8:56	205:59 12:17	.....	.....	.....	.....	.....	.....	.....	.....
108:55 13:24	116:36 7:41	161:54 45:28	171:56 10:02	182:07 10:11	*	.....	.....	.....	.....	.....	.....	.....	.....
175:03 10:22	185:49 10:46	201:50 16:01	211:11 9:21	220:28 9:17	231:42 11:14	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....

Mechanician A. H. Johnson went ahead when the car stopped and landed on his head and shoulders in the grass. He was merely stunned, however, and in a couple of minutes he and Hayes were walking cross-country to the main stand, leaving their car, with its smashed wheels, to be taken care of by the police. Malin Leinau, driving Acme No. 7, missed serious trouble at the same point by quick work and a little luck. His speed carried him so far to the side of the road that the car mounted the gently shelving bank and ran on the grass for 50 yards, passing between the scattered trees and reaching the road some distance below. On a later lap the Acme shed a tire at the foot of the same slope and had to stop directly in the path of the others while the crew fitted another to the wheel. The Selden No. 23 broke a wheel on the same S-hairpin on the first lap and lost over half an hour. The Acme furnished a sensation in the twelfth lap when the right rear tire came off directly in front of the upper end of the long grand stand. The tire flew 30 feet into the air and in its descent struck a small boy who was watching the run from one of the pits in front of the stand.

Chalmers-Detroit No. 19, Lorimer driver, on the fifth lap cracked its frame by a skid into the gutter at the rough going coming through the Chamounix bridge, and was compelled to retire. A broken water pump eliminated Lozier No. 22.

Probably a more complete system of course protection never was in force than at today's race. Besides the 1,800 foot policemen and 100 members of company B, state engineer corps, there were eighty park guards, eighty mounted cops, sixty flagmen and sixty umpires—all thoroughly drilled in their duties—and 58,000 feet of rope. To cement this large force and make it work as a unit there was installed a most complete telephone signal system, in charge of Chief McLaughlin, of the electrical bureau. A score of telephone stations at various points around the course were centralled in Director of Public Safety Clay's motor car, directly under the press stand.



BERGDOLL IN THE THOMAS SIX LEAVES A SMOKY TRAIL

Lap by Lap Story of Race

Robertson Takes the Lead in Fourth Lap and Holds It To End—Apperson Runs a Consistent Third Throughout Race

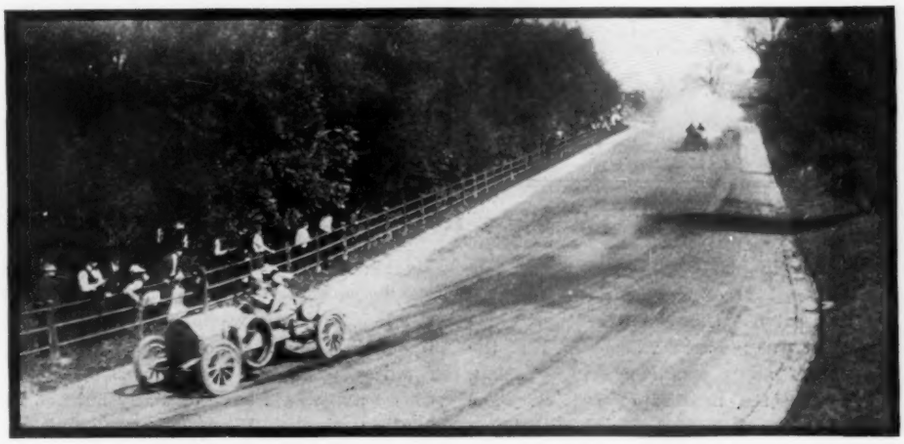
LAP 1—Despite the fears of the contestants that Starter Gantert would not do for a big race, he got his field off at 15 seconds' intervals in fine shape. It was evident that there was to be no waiting game played, for all the favorites let their cars out to the limit from the jump—Robertson in the Simplex, Chevrolet in the Buick, Drach in the American, and Zengel in the Chadwick all doing the lap under 9 minutes—in 8:33, 8:40, 8:44 and 8:50 respectively—with Dingley's Chalmers and Wallace's Palmer-Singer fifth and sixth respectively. Selden No. 23 threw a tire at Sweet Brier hill, less than a mile from the start, and lost 35 minutes. Burman's Buick No. 9 was not working right and he finished the lap among the tail-enders. Haupt in the Thomas No. 6, Leinau in Acme No. 7 and Harding in the Apperson No. 8, also had trouble with tires on the initial round and lost valuable ground. Seymour, on the back stretch, near the Neill drive serpentine, broke his water pump and dropped out then and there, failing to complete the first lap.

Lap 2—Chevrolet jumped his Buick into the lead, with 39 seconds advantage over Robertson, who was sharing third place with Drach in the American, and 32 seconds ahead of Zengel in the Chadwick, who had crawled up into second place. Reports of continued tire trouble came flashing in from Benz No. 3, Willie Haupt's Thomas and Leinau's Acme, the trouble occurring in each instance far from the pits, and resulting in additional delay. Dingley was still in fifth place, but by a closer margin, and Parkin had brought his Chadwick up into sixth position, displacing Wallace's Palmer-Singer, which dropped a notch.

Lap 3—This round saw Chevrolet still in the lead, but by the small margin of 3 seconds over Robertson, who had an advantage over Drach of 46 seconds. Zengel dropped back to fourth position, 8 seconds behind Drach, with Dingley still fifth and his team mate, Lorimer, in Chalmers-Detroit No. 19, coming up rapidly from ninth place to sixth. Strang in Isotta No. 17 first began to show prominently in this round, coming up from tenth to seventh position and trailing the Chalmers pair closely. Bergdoll and Betz, in the Thomas and Simplex respectively, were having a battle all to themselves, occupying eighth and ninth positions, and being separated by a margin of but 5 seconds. The former's brother Erwin, in the Welch No. 20, failed to register the third lap, having been reported in trouble with this engine on the Neill drive; he later retired. Coffey's Columbia No. 14 also developed a loose rear construction likewise withdrew.

Lap 4—Robertson came back to his own on this round, Chevrolet's engine misbehaving sufficiently long to relegate him to fifteenth place, while Drach and Dingley moved up into second and third places respectively, but with a margin of nearly 1½ and 3 minutes separating them from the leader, thanks to Robby's record 7:44 in the previous round. Amateur Betz, in

HAYES IN AMERICAN HITTING TELEGRAPH POLE



DINGLEY IN CHALMERS, WINNER OF CONSISTENCY PRIZE

for Fairmount Park Cup

Dingley in the Chalmers Goes Fourteen Laps Before Climbing to Second Place—Fastest Time for One Circuit by Zengel

Simplex No. 1, crawled up into fourth place, the local man's effort being greeted with cheers. Strang also improved his position, climbing to fifth place, Zengel dropping to seventh and letting Bergdoll, another local favorite, in ahead of him. Engine trouble was reported as the cause of Zengel's slow-down. Parkin, still another Quaker favorite, who had dropped to eleventh in the previous round, moved up to ninth place, right behind Hayes in the American roadster, who had also improved his position from twelfth to eighth place. Haupt's Thomas No. 6 was reported down and out with engine trouble.

Lap 5—This saw Robertson still in the lead, but with Zengel, by virtue of a phenomenal round in 7:40, flashing into the place, with but a trifle over a minute separating him from the leader. Dingley still was third, by a similar margin, while Brewer Betz was ousted from his hold on fourth place by Strang, but by the margin of but 1 brief second. Bergdoll still occupied sixth position, with Drach, who had to stop at the pit, in seventh place as a result of the 5-minute lay-over. Chalmers-Detroit No. 19 was reported at the filter plant with a broken frame, and later was announced as withdrawn. The Parkin Chadwick nosed out the American roadster No. 12 for eighth position, the latter leading Harding's Apperson by exactly 1 minute.

Lap 6—There were no changes in the relative positions of the three leaders, although Zengel had gained 24 seconds on Robertson during the round, with Dingley 2:01 behind the Chadwick. Betz regained fourth place from Strang and led him by 33 seconds at the wire, with Bergdoll's Thomas, Drach's American and Parkin's Chadwick retaining their respective positions.

Laps 7 to 13—For seven laps the positions of the leading quintet remained unchanged. With the regularity of clockwork Robertson kept grinding out laps that averaged 8:35, a short stop in the eleventh round, when Zengel came within 14 seconds of him, being followed in the thirteenth by a hair-raising lap. In the unlucky thirteenth round Zengel also opened 'er up and set the stands rocking with a 7:41 circuit; but he must have pushed matters too strenuously for it was three-quarters of an hour before he reappeared at the tape, magneto trouble developing and delaying him continuously. During this period Dingley kept ding-donging along at a most beautifully even pace, without a stop for anything, supplies and tires seeming apparently to be unheard-of things in the Dingley lexicon. The margin of time separating him from the leaders seldom varied more than a minute, and the Chalmers kept on in the even tenor in a manner that boded ill for them if they faltered. The plucky driving of Amateur Betz during this period brought him a big hand every time he sent his big yellow Simplex past the stand. He tore off a 7:54 on the eleventh round, just to show what he could do. At the end of the thirteenth round he was a trifle over 7 minutes behind Robertson and going like an electric fan, with very little fuss. Strang kept his Isotta within striking distance and if anything happened it was evident that he would have to be reckoned with. During these seven laps the Parkin Chadwick, Harding's Apperson and the Drach American were having a triangular battle for sixth, seventh and eighth places, the completion of the thirteenth lap showing them placed in the order named. On the seventh lap Hayes' American No. 12 was eliminated by a telegraph pole into which it skidded on the back stretch, breaking both front wheels and otherwise damaging the car. The following lap witnessed the departure of Leinau's Acme, after a series of disheartening delays due to engine trouble. The same cause was announced as being responsible for the disappearance of Chevrolet's Buick from the course in the twelfth lap.

Laps 14 and 15—With Zengel's troubles in the fourteenth round came a move-up for Dingley and Betz, this pair dropping into second and third places, about 6 and 8 minutes, respectively, behind Robertson. Parkin jumped ahead of Strang just here, and it was a peculiar coincidence that throughout the race, almost from the start, these two were within striking distance of each other, the margin separating them rarely being much more than a minute, except on those occasions when one or the other stopped for supplies. Both cars ran most consistenly. Apperson moved up into sixth place on the fourteenth round, and Wallace, in the Palmer-Singer, who had been going sweetly, swung in back of him on the fifteenth circuit.

Laps 16, 17 and 18—Nothing now apparently being able to dislodge Robertson and Dingley from their positions except serious trouble of some kind, interest in the race was centered in the struggle for third place between Hardin, Parkin and Strang. The last named looked good to the crowd when he finished the sixteenth circuit in the coveted position and retained his advantage in the next two rounds, but it was evident that the slightest delay

BURMAN IN BUICK SKIDS IN MAKING A CORNER

for any of the trio would put the others ahead of him, and so it proved. At the end of the sixteenth round Zengel, whose plucky fight with the leader had won him hosts of sympathizers, finally withdrew his Chadwick, a broken water connection being the last straw. The eighteenth circuit also witnessed the withdrawal of the last hope of the Buick contingent. Burman's long delay in the eighth round having put him so far in the rear that it was evident that he hadn't a ghost of a chance. This left but nine cars in the race.

Laps 19, 20 and 21—Robertson and Dingley during this period opened still wider the gap separating them from the others, although neither of them took any chance which might dislodge him from his position, Robertson averaging about 8:40 and Dingley around 8:50, and playing 'em safe at all times. Harding and Parkin pried Strang out of his place in the nineteenth, but the Chadwick man was in turn dislodged by the Isotta in the twentieth circuit, which advantage was retained through the next round, although Strang could not make up any of the nearly 3 minutes or more by which Harding led him at the end of the nineteenth. Betz's Simplex was taken out of the race at the conclusion of the twentieth round, for no apparent reason for the car was running sweetly.

Laps 22 to 25—At the end of the twenty-second circuit Joe Parkin dislodged Strang from fourth position, which was being fought for savagely, for it meant $500 in gold to the driver who landed it. The Chadwick man led by but 24 seconds, but in each succeeding lap to the end of the race he added a little to his lead until at the flag he had nearly a minute and a half on the Isotta. Robertson, Dingley and Harding were too far ahead for Parkin to care to do anything more than hold his own, and the race finished with the positions unchanged in the last four laps. When the crowd finally overflowed the track Drach's American No. 2, Howard's Benz No. 3, Wallace's Palmer-Singer No. 10, and Youngs' Selden No. 23 were also pegging away, the latter having finished its seventeenth lap, the Benz its twenty-first, the American its twentieth and the Palmer-Singer its twenty-fourth. The latter might have officially finished in another minute but the police raised the bars just as Wallace hove in sight at the head of the stretch, and he had to shut down, his car being swallowed up in the dense crowd.

Gossip of The Race at The Pits

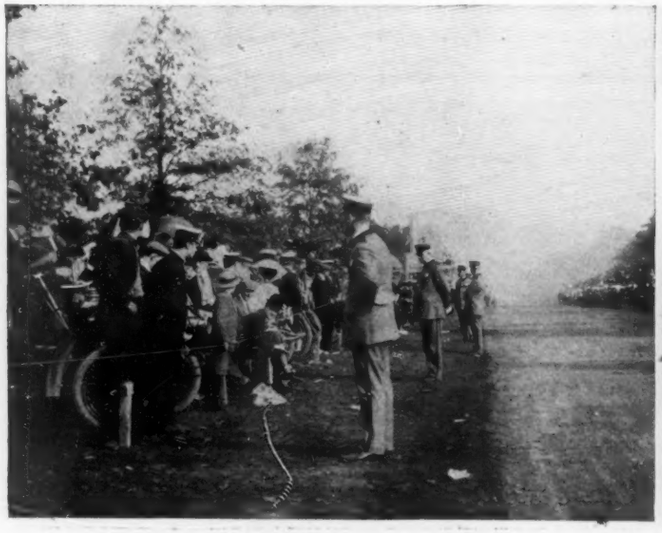
The supply pits, which stretched along the entire front of the grand stand, were ideally located—from the spectators' viewpoint. It was remarked, however, that the number of stops was surprisingly small, considering the number of entries. The Chalmers-Detroit outfit sat idle all day—Lorimer going out too early to require assistance and Dingley running so smoothly throughout that he declined to stop even once. He knew he had sufficient gasoline and oil for the voyage, and his tires were apparently sound and he took a chance. It was the most consistent bit of running ever put over in a big race, as the experts averred.

Robertson's one stop, at the end of the thirteenth lap, gave the stands an opportunity to witness action. Robertson was not fairly out of his seat before the Simplexites were all over the car. There was system in the apparent confusion, though, and Robby was sent on his way with an encouraging cheer echoing behind him. But the real goods in quick action was afforded by the Appersonians, whose pit was almost directly opposite the press stand. Harding, for one reason or another, seemed to stop more often than any of the real contenders. At one stop a new tire was put on and tanks filled in a trifle over 1 minute.

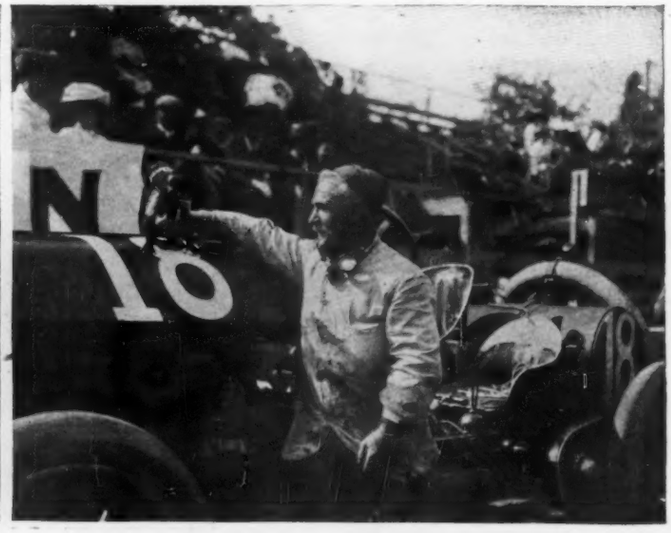
Fred Betz, in the Simplex No. 1, stopped but once, at the end of the fifteenth round, to put on new tires. His crew was not as expert as the others, and the leaders made a lap before he got going again. Wallace made a short stop in the fourth and a much longer one at the end of the fourteenth; it looked like engine trouble from the press stand. But for the latter stop the Palmer-Singer would have in all likelihood been in the money, as it was still running when the people swamped the course and would have officially finished in another minute. When Robertson finished the committee decided to allow six cars to check in before calling the race off, but after Strang crossed the line in fifth place it gave the word to Superintendent Taylor, who blew his whistle and Wallace was shut out of the credit of an official finish.

During the practice on Friday morning a flooded carbureter almost put Harding's Apperson out of commission altogether. The tanks had just been filled and one of the pit attendants was cranking up when there was a burst of flame. Harding and Clifton, his mechanician, jumped for their lives. There was nothing on hand to extinguish the flames. Old coats and the burlap coverings in which tires are shipped were tried, but nothing availed, and the fire was allowed to burn itself out. The mishap necessitated a complete going-over of the car, and the force at the local Apperson agency worked all night over it before the car was pronounced fit again.

No. 21, the Welch car that was to have been driven by Al Hall, did not start, as Hall, who had been arrested earlier in the week for disregarding the signals of the coppers and for assault on an officer, was disqualified by the contest committee of the Quaker City Motor Club for failure to live up to the practice rules. His $500 entrance fee was returned, and he and his wife, who is the sister of the Bergdoll



POLICE ARRANGEMENTS IN THE PARK



PARKIN, SR., WHO ACTED AS MECHANIC FOR SON

boys, who drove Thomas No. 15 and Welch No. 20, and for whom Hall was formerly chauffeur, witnessed the race from the grand stand.

Perhaps the most fortunate accident to happen during the day was that to Harry Grant's No. 11 Alco. As he drew up to the grand stand preparatory to the start, the brazing on his steering column gave way, allowing the wheel to turn independent of the worm and rendering steering impossible.

What Happened to the Racing Cars

The average speed of the first five cars was higher than that of last year's winner. No. 4 Simplex averaged 55.4 miles per hour; No. 5 Chalmers, 54.2; No. 8 Apperson, 52.2; No. 18 Chadwick, 51.4; No. 17 Isotta, 51.3. The Locomobile last year did 50.1. Zengle in the Chadwick made a lap in 7:41, or at the rate of 63.3 miles per hour. Next came the big Simplex with 62.9 miles per hour. Following these closely came Dingley with a lap at 62.3. The fourth best was Betz with the other Simplex, 61.5. The prize for consistency of running was won by Dingley in the Chalmers.

The first five cars were equipped with Michelin tires. Robertson and Harding made but one change, and that when they stopped for fuel supplies.

A few words on what happened to some of the cars. No. 9 Buick stopped at the pits on the second lap to change spark plugs and repair a badly-leaking radiator. Large quantities of flaxseed were poured into the radiator in the vain endeavor to stop the leakage. Finally Burman withdrew on this account.

No. 10 Palmer & Singer made a good showing, considering that Wallace had to drive the major portion of the race with a broken universal joint.

No. 3 Benz broke an exhaust valve on the third lap and stopped at the pits to replace it. It continued in the race after making the replacement, although hopelessly behind.

The Acme was very unfortunate, having almost no mechanical trouble, but its slow speed was due to continuous tire trouble. The rims would constantly become loose, and the difficulty was finally found to be the use of 4½-inch tubes in 5-inch covers.

Coffey, driving No. 14 Columbia, gave the reason for his accident. Parkin, senior, verified the tale. The big Chadwick made a bad skid when turning into City Line avenue and Coffey, in order to avoid crashing into the Chadwick, tried to go outside between a tree and the car. His rear axle struck the tree and simultaneously his front wheels struck the right rear wheel of Parkin's car. The Columbia's rear axle was torn from the spring clips, so violent was the impact. On the other hand, Parkin's rear wheel was badly loosened up, but by running the risk and doggedly pushing the car along, he finished fourth, ahead of the Isotta, which did not have to stop once, except for fuel.

Both Willie Haupt, driving No. 6 Thomas, and Chevrolet, driving the hoodoo No. 13 Buick, broke inlet valves. Haupt replaced his, but Chevrolet had to drop out, as the broken valve punched a hole in the cylinder.

Bergdoll's No. 15 Thomas had such a chronic case of overheating that he finally had to withdraw, this being all that could be determined as to his failure.

Drach, driving an American bearing the same number as at Lowell, No. 2, while making good time for the first few laps, finally had mechanical difficulties which put him out of the race. His first stop was to replace a rear auxiliary air valve. This was followed by the loosening of his auxiliary gasoline tank. The feed pipe unions to the carbureter cracked because of the displaced tank.

The other American, driven by Hayes, met with disaster at Sweet Brier Hill. Hayes stated that first one and then the other rear tire gave way when he set his brakes. The reaction threw the car into the ditch. As it was, Hayes experienced great difficulty to keep from hitting the telephone pole head-on. His rear hub, however, caught and nearly pulled it entirely from the car.

Betz, after having third place well in hand with No. 1 Simplex on the sixteenth lap, was forced to withdraw on account of a broken pump and overheated motor.

Zengel, with the big Chadwick which made the fastest time, literally shook his water pipes loose. The pipes on top of the cylinders were leaking badly, and finally, it was stated, his water pump drain plug opened. The motor ran hot, and it was reported Zengel went down to the Schuylkill river to get water to replenish the empty motor. After this, however, he never was a factor in the race. At the time of this accident he was running second.

No. 22 Lozier was reported to have broken a pumpshaft on the first round. Another equally definite rumor was that the after main crankshaft ball-bearing rod broke.

No. 19 Chalmers-Detroit on the fourth lap broke its frame and, of course, retired.

The driving of Fred Betz, the local brewer, who handled Simplex No. 1 like a veteran, was something of a revelation to the vast crowds. From ninth position at the start he gradually worked his way up to third place, which he held at the close of the fifteenth round, only 5 minutes and a fraction behind Robertson. He lost time at the pit, however, and on his next round he had fallen back to sixth position. Just to show that he could do some tall driving he tore off the eleventh lap in 7:54. Most of his rounds, however, were made in the neighborhood of 9 minutes, and a glance at the score will show that his car's performance was remarkably consistent. He dropped out at the end of the twentieth lap, because he realized that he had no chance of winning.

TABLE SHOWING POSITIONS OF CARS ON EACH LAP OF THE FAIRMOUNT PARK RACE

No.	CAR	DRIVER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
4	Simplex	Robertson	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Chalmers-Detroit	Dingley	5	5	5	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2
8	Apperson	Harding	17	14	13	10	10	10	10	8	8	9	8	7	7	6	6	4	4	4	3	3	3	3	3	3	3
18	Chadwick	Parkin	7	6	11	9	8	8	7	7	7	6	6	6	6	4	4	5	5	5	4	5	5	4	4	4	4
17	Isotta	Strang	11	10	7	5	4	5	5	5	5	5	5	5	5	5	5	3	3	3	5	4	4	5	5	5	5
10	Palmer-Singer	Wallace	6	7	10	11	11	11	11	9	9	8	9	9	9	8	7	7	7	7	7	7	6	6	6	6	....
3	Benz	Howard	13	15	16	14	13	13	13	11	11	11	10	10	10	10	8	8	8	8	8	8	7	....	....	....	....
1	Simplex	Betz	9	11	9	4	5	4	4	4	4	4	4	4	4	3	3	6	6	6	6	6	....	....	....	....	....
2	American	Drach	3	4	3	2	7	7	6	6	6	7	7	8	8	7	11	11	10	9	9	9	....	....	....	....	....
9	Buick	Burman	19	17	14	12	12	12	12	13	13	13	12	11	11	11	10	10	9	....	....	....	....	....	....	....	....
23	Selden	Youngs	20	20	18	17	16	16	16	14	14	14	14	13	12	12	12	12	11	....	....	....	....	....	....	....	....
16	Chadwick	Zengel	4	2	4	7	2	2	2	2	2	2	2	2	2	9	9	9	....	....	....	....	....	....	....	....	....
15	Thomas	L. Bergdoll	8	8	8	6	6	6	8	10	10	10	13	12	....	....	....	....	....	....	....	....	....	....	....	....	....
13	Buick	Chevrolet	2	1	1	15	14	14	14	12	12	12	11	....	....	....	....	....	....	....	....	....	....	....	....	....	....
7	Acme	Leinan	16	16	17	16	15	15	15	15	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
12	American	Hayes	15	12	12	8	9	9	9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
19	Chalmers-Detroit	Lorimer	10	9	6	13	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
6	Thomas	Haupt	18	19	15	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
20	Welch	E. Bergdoll	14	13	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
14	Columbia	Coffey	12	18	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
22	Lozier	Seymour	21	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

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Landslide to the A. L. A. M.

SPECULATION—and it is largely speculation, we are sure—is rife at the present time among manufacturers whom misfortune or good fortune, it is not known which, has put outside of the Association of Licensed Automobile Manufacturers at the present time. The landslide of a week ago, when seven of the stalwart companies belonging to the American Motor Car Manufacturers' Association joined the licensed ranks, started this speculation, although the indirect cause was the recent decision of Judge Hough in favor of the Selden interests in the long-drawn-out case of Selden and Ford. Up to the present it has been largely a matter of conjecture as to why these seven concerns so soon after the decision adverse to the A. M. C. M. A. should cast their allegiance to the licensed ranks. Apparently the prime cause of the landslide was not the thought of back royalties, because these concerns met the licensed representatives and agreed on an amicable settlement of this question. The one problem which seemed to have been of special moment to some of the A. M. C. M. A. lights, and doubtless to the A. L. A. M. followers, was the problem of overproduction. There has seemed to be among many manufacturers in the A. L. A. M., as well as in the A. M. C. M. A., a realization that the recent extraordinary demands for motor cars is inducing manufacturing preparations such as to arouse the fears of a dreaded overproduction and more or less disaster to all concerned, including those firms which bore the brunt of experimental expenses when a market for motor cars proved somewhat unprofitable.

THERE never has been a period in the motor industry in which the launching of new concerns is so prolific as at present. Scarcely a week passes but the announcement is made of one or another carriage concerns, or other organization, entering the industry and announcing its plans of making anywhere from 200 to 6,000 cars during the present season. The days of a new concern starting with fifty, 100 or 150 cars for the first season are unknown; in fact, not a new concern has been announced this autumn that has not included in its announcement the building of more than 500 cars. The question as to how such and such concerns can possibly build 500 or 5,000 cars during the present season is a debatable one, because of the unprecedented shortage of parts. It is a fact that many of the manufacturers who have been making cars for 3 or 4 years are having difficulty in getting frames, not a few of the frame builders expressing their goods to the car factories in order to keep reasonably apace with promised deliveries. This situation is fairly general and naturally prompts the question, "How can new concerns, who have just decided during the present fall to enter the car manufacturing industry hope to secure adequate parts unless orders for such have been placed many months in advance?"

IT apparently is a realization of this condition that has been at least one factor, if not a major one, in bringing seven of the A. M. C. M. A. into the A. L. A. M. ranks. Granted that such is the case, it is not to be expected that such action means prosecution of those who do not see such an acuteness in the motor situation today. It would be wrong to interpret this as a legal step towards crushing out manufacturers who do not see as others do. Undoubtedly, the idea is to discourage the promiscuous marketing of half-baked new products.

Substitution in Coil Parts

FOR two seasons the problem of substitution in oils and greases has been a much mooted question in the motor car field, many buyers having asked for certain brands of high-grade oils only to find out later that a cheaper brand had been sold them, although in cans labeled and marked as if the genuine product. This substitution traffic is still going on, only last week a case coming to the attention of Motor Age in which a can of grease was properly marked as the product of a certain manufacturer, but after analysis showed the article to be anything but such. There is apparently no way to stop this other than that manufacturers sell their products in sealed cans, which in many cases will meet with varied difficulties.

BUT the substitution evil has in the last couple of years gone still further and has invaded the electric realm of the car, entering chiefly into the matter of vibrators for coils as well as adjustment screws. There are today certain companies which manufacture vibrators, adjustment screws and other parts for all of the different coils made in this country. The substitution makers, it is needless to say, do not put the same grade of materials into the parts they manufacture, although they receive almost the same price as is paid for the genuine article. With the substitution vibrator the points, although they appear to be platinum, rarely are, with the result that they soon blacken and the coil fails to give the looked-for spark. Substitution manufacturers of this nature make their money out of the fact that they do not fit platinum points. Platinum points cost money and it is a claimed fact by certain makers that the original cost of the platinum is two-thirds of the list price of the substituted part.

The direct evil of this substitution business is the inevitable injury done to the coil makers, and this burden does not fall on any particular maker, because all of the coil parts are produced by the substitution makers. The danger lies with the buyer or owner of the coil, who after the original part has been discarded finds himself getting into deeper waters as the months go by because each of the substituted parts fails to give anything like the service the original one did. As a result the certain make of coil is branded as troublesome, as giving no end of vibrator adjustment, whereas as a matter of fact the vibrator used is not even manufactured by the company that originally made the coil.

THERE are two ways of stopping this substitution trade in the coil field: the first is to have the coil manufacturers have their name stamped on the several parts of their coils. It is not enough to have the name stamped on the coil units, but the name should be stamped on the vibrator, the adjustment screw and other exposed parts which offer a ready field to the substitution dealer. The other method of correcting the abuse rests entirely with the buyer. He should examine the part purchased very closely to see that it is a perfect duplicate of the original part. In some makes of coils this can be detected by the method in which the vibrator end is attached to the spring, and in others by the attachment or shape of the would-be platinum point. Motor Age has seen cases of coil trouble in which the vibrator failed to work and where examination proved that the vibrator was a substituted one without genuine platinum points.

NEW ENGLAND ATTRACTS MOTOR TOURISTS

Review of the Season Shows Small Fortune has Been Spent By the Pleasure Seekers

BOSTON, Mass., Oct. 9—With the touring season drawing to a close in New England an estimate of what the summer brought to this section of the country from motorists who were not residents of these states shows that it would not be putting the figures too high to say that at least $300,000 was left here. When it is considered that more than twice as many cars again are registered in New England as may have toured this section, and their owners spent their money hereabouts, anyone may easily figure that at least $600,000 was spent by motorists here this summer.

To get at the figures one has to make estimates, of course, and in this instance the figures are made as conservative as possible, all things considered. It must be remembered that the New England states are small, and so this allows for much interstate traffic, so with mountains, lakes and seashore for attractions there is much traveling by tourists in motor cars. To get at the real source to strike an average there are reliable figures compiled under the direction of hotel proprietors at Bretton Woods. The Mount Washington and Mount Pleasant hotels opened early in July and they were not closed until the first few days of October. A record was kept of the arrivals by motor cars each day, and when the season ended it was found that 74 per cent of the business at the Mount Washington and 37 per cent at the Mount Pleasant hotels was due to motor parties. For both hotels, when a balance was struck, it was found that about 55 per cent, or more than half the season's business, was landed at their doors in motor cars.

The Mount Washington opened its doors on July 10. From that time to October 1 there were registered at the hotel 5,414 guests. Of this number 4,014 came in motor cars. These figures do not include chauffeurs and maids. As there were 964 cars registered at the garage it shows that the number of chauffeurs must have totaled at least 300. They had to be cared for, so that with the maids also considered it brings the number who were at the hotel pretty close to 5,000, a considerable army, all things considered.

At the Mount Pleasant house, just across the golf links, there were registered to October 1, 4,119 guests. Of this number 1,534 arrived at the hotel in motor cars. The machines registered at the hotel were 409. The hotel did not close officially until October 4, and there were at least six motor parties additional which came up to spend Sunday, so that the total of cars would be about 415 and motorists about 1,550, so that the total for both hotels is 1,379 machines, with 5,669 motorists, or including chauffeurs and maids, at least 7,000 brought to this one point alone by the cars in 3 months. Had Mount Pleasant remained open longer the figures would have been increased, for October is a delightful month to tour New Hampshire. And another thing worth considering is that there was more rain during September than has been seen in New England for years, and this kept many away.

With these figures as an absolute basis it gives something upon which to work. Of the 1,379 cars at the mountains the greater number were from other states, but not assuming too much allowance can be made for New Hampshire cars, so if the figures were placed at 1,000 machines from other states it would not be very far wrong. Now turn to Maine. Certainly at least half of the cars went down to Poland Springs or came from there to Bretton Woods. So that allows for Maine 500, which together with cars from other parts of New England might easily place the total at 750. However, only the 250 extra ones will be added to the original 1,000 and so now there are represented 1,250 machines. Vermont can contribute to the figures because many cars pass through that state from New York, Massachusetts and New Hampshire. So of the original 1,000 at least 25 per cent or 250, went to the Green mountain state. But for purposes of calculation it is safe to place the number of other cars from beyond its borders that went through there at about 150. So the total of original cars is now 1,400.

Massachusetts always attracts many motorists and throughout the summer there were something like ten or more cars from elsewhere being registered each week. That was but a small percentage of the foreign cars that passed through the state, however. So it is safe to say that of the 1,000 cars that went to New Hampshire at least 60 per cent, or 600, passed through the Bay State. So, allowing for those who came with their machines to the Berkshires at one end and the north shore at the other from without the state, and not included in the 600, there were at least 400 more. That brings the total of original machines touring about at 1,800.

Rhode Island, with Newport and Narragansett pier, together with the shore resorts along the Providence river, always attracts many motorists each summer. It would not be stretching it to say that at least 100 of those who went to the mountains stopped over in Rhode Island on the way. But aside from them it is not an extravagant statement to say that at least 300 other cars from other states were in the little state more or less during he summer. So the figure now stands at 2,100 machines. Then there is Connecticut. Many of the machines going to the mountains went over the ideal route and so they passed through Connecticut. At least 50 per cent went through, no doubt, but in addition to those there were many going to the summer homes along the sound. Because it is so near New York the total of cars that went to Connecticut outside of those bound for the mountains can safely be estimated at 400. That brings the total of cars therefore to approximately 2,500.

As it was shown that more than 5,000 people were in the cars that went to Bretton Woods, therefore with one and a half as many more machines there were at least 12,000 touring about. Placing the average expense of each person at $3 a day that gives $36,000. Assuming that each one spent at least a week on the trip the figures are $252,000. This is for meals and rooms alone, the expense of the cars not being taken into consideration. Nor is the money spent for extras considered. With the other expenses added it is easy to bring the figures to $300,000 for the summer, or an average of $100,000 a month for July, August and September.

Now as there are more than fifteen times as many cars registered in New England as have been computed as coming here, or as making interstate trips, and the owners of these cars have been using them all summer making trips to various places for a day or two at least and spending their money, too, the aggregate would easily be as much as the foreigners.

Coming Motor Events

OCTOBER

15-16—Third 24-hour track race at Brighton Beach, New York.
16-21—Show at state fair, Dallas, Tex.
21-22—Bay State A. A. endurance run, Boston.
23—Road races of Automobile Club of California, San Francisco.
27-29—Track meet at Vicksburg, Miss.
28-30—3-day track meet at Dallas, Tex.
30—Vanderbilt cup race.
30-31—Track meet at Los Angeles, Cal.

NOVEMBER

1—Second meet on Indianapolis Motor Speedway.
3-13—Outdoor show at Salt Lake City, Utah.
6-13—National show at Atlanta, Ga.
9—Opening meet at Atlanta speedway.
22—Start of flag-to-flag reliability, Denver to City of Mexico.

DECEMBER

28-29—Philadelphia mid-winter reliability run.
31—Opening of Grand Central palace show, New York.

JANUARY

7—Closing of Grand Central palace show, New York.
8-15—Madison Square garden show, New York.
17-24—Philadelphia show.

FEBRUARY

5-12—N. A. A. M. show, Chicago Coliseum.

MARCH

5-12—Boston show.

MAKERS CLAMOR FOR SPACE AT CHICAGO

NEW YORK, Oct. 9—An unprecedented number of applications for space at the Chicago show was considered by the management on Wednesday. It was found that there were 104 applications for space in the motor car section, and that the applications covered more than twice the amount of space available. Heretofore motor car exhibits had been confined to the main floors of the Coliseum, annex and First Regiment armory, and a few cars had been placed in the Coliseum basement. This year, after exhausting the entire basement, there were still eight car manufacturers for whom it was impossible to provide any space at all, but who will, of course, be given the first opportunity to take advantage of any withdrawals. Since the allotment six other car manufacturing concerns have applied for space, so there are now fourteen on the waiting list.

The entire gallery of the Coliseum and the principal part of the second floor of the Coliseum annex have been allotted, as heretofore, to the motor and accessory manufacturers, who will make their own allotment. At this time the number of applications from members of that association is greater than in any previous year. All remaining space on the second floor of the Coliseum annex is reserved for the motor cycle section. There are twenty spaces, and applications in hand for over forty. Unattached makers of accessories have been given the gallery of the First Regiment armory. It was necessary to allot them one space apiece, and even then there is not enough space in this section to go around. A list of the car manufacturers who have been allotted space is appended:

Knox Automobile Co.....Springfield, Mass.
Apperson Brothers Auto. Co.....Kokomo, Ind.
Buick Motor Co.....Flint, Mich.
Cadillac Motor Car Co.....Detroit, Mich.
Stevens-Duryea Co.....Chicopee Falls, Mass.
E. R. Thomas Motor Co.....Buffalo, N. Y.
Thomas B. Jeffery & Co.....Kenosha, Wis.
Pierce-Arrow Motor Car Co....Buffalo, N. Y.
Elmore Mfg. Co.....Clyde, O.
Haynes Automobile Co.....Kokomo, Ind.
Pope Mfg. Co.....Hartford, Conn.
Maxwell-Briscoe Motor Co....Tarrytown, N. Y.
Dayton Motor Car Co.....Dayton, O.
Packard Motor Car Co.....Detroit, Mich.
Olds Motor Works.....Lansing, Mich.
H. H. Franklin Mfg. Co.....Syracuse, N. Y.
Chalmers-Detroit Motor Co.....Detroit, Mich.
Reo Motor Car Co.....Lansing, Mich.
Premier Motor Mfg. Co.....Indianapolis, Ind.
Woods Motor Vehicle Co.....Chicago
Everett-Metzger-Flanders Co.....Detroit, Mich.
Columbia Motor Car Co.....Hartford, Conn.
Studebaker Bros. Mfg. Co.....Chicago
Peerless Motor Car Co.....Cleveland, O.
Locomobile Co. of America...Bridgeport, Conn.
Winton Motor Carriage Co.....Cleveland, O.
Metzger Motor Car Co.....Detroit, Mich.
Nordyke & Marmon Co.....Indianapolis, Ind
American Locomotive Co.....New York City
White Co.....Cleveland, O.
Matheson Motor Car Co.....Wilkes-Barre, Pa.
Corbin Motor Vehicle Corp..New Britain, Conn.
Baker Motor Vehicle Co.....Cleveland, O.
Babcock Electric Carriage Co....Buffalo, N. Y.
Bartholomew Co.....Peoria, Ill.
National Motor Vehicle Co...Indianapolis, Ind.
Waverley Co.....Indianapolis, Ind.
Mitchell Motor Car Co.....Racine, Wis.
Ricketts Automobile Works...South Bend, Ind.
Lozier Motor Co.....New York City
Hudson Motor Car Co.....Detroit, Mich.
Royal Tourist Car Co.....Cleveland, O.
F. B. Stearns Co.....Cleveland, O.
Oakland Motor Car Co.....Pontiac, Mich.
Pennsylvania Auto Motor Co..Bryn Mawr, Pa.
Selden Motor Vehicle Co.....Rochester, N. Y.
Midland Motor Car Co.....Moline, Ill.
American Motor Car Co.....Indianapolis, Ind.
St. Louis Car Co.....St. Louis, Mo.
Chadwick Engineering Works...Pottstown, Pa.
Toledo Motor Co.....Toledo, O.
Buckeye Mfg. Co.....Anderson, Ind.
Jackson Automobile Co.....Jackson, Mich.
Austin Automobile Co.....Grand Rapids, Mich.
Regal Motor Car Co.....Detroit, Mich.
Dorris Motor Car Co.....St. Louis, Mo.
Moon Motor Car Co.....St. Louis, Mo.
Brush Runabout Co.....Detroit, Mich.
Gaeth Automobile Co.....Cleveland, O.
Mora Motor Car Co.....Newark, N. Y.
Simplex Motor Car Co.....Mishawaka, Ind.
Moline Automobile Co.....East Moline, Ill.
York Motor Car Co.....York, Pa.
Staver Carriage Co.....Chicago
Berliet Import Co.....Chicago
Palais de l'Automobile.....New York
Renault Selling Branch.....New York
Fiat Automobile Co.....New York
Rapid Motor Vehicle Co.....Pontiac, Mich.
Cartercar Co.....Pontiac, Mich.
W. H. McIntyre Co.....Auburn, Ind.
Hupp Motor Car Co.....Detroit, Mich.
Holsman Automobile Co.....Chicago
Speedwell Motor Car Co.....Dayton, O.
Jewel Carriage Co.....Cincinnati, O.
Atlas Motor Car Co.....Springfield, Mass.
Rauch & Lang Carriage Co.....Cleveland, O.
C. P. Kimball & Co.....Chicago
Black Mfg. Co.....Chicago
International Harvester Co.....Chicago
Wayne Works.....Richmond, Ind.
Grabowsky Power Wagon Co....Detroit, Mich.
Kissel Motor Car Co.....Hartford, Wis.
Rider-Lewis Motor Car Co.....Muncie, Ind.
Zimmerman Mfg. Co.....Auburn, Ind.
Inter-State Automobile Co.....Muncie, Ind.
Cameron Car Co.....Beverley, Mass.
Auburn Automobile Co.....Auburn, Ind.
Anderson Carriage Co.....Detroit, Mich.
Streator Motor Car Co.....Streator, Ill.
Great Western Automobile Co.....Peru, Ind.
Elkhart Motor Car Co.....Elkhart, Ind.
Schacht Mfg. Co.....Cincinnati, O.
Fal Motor Co.....Chicago, Ill.
Columbus Buggy Co.....Columbus, O.
Lion Motor Car Co.....Adrian, Mich.
Fuller Buggy Co.....Jackson, Mich.

ATLANTA SHOW DECORATIONS

Atlanta, Ga., Oct. 11—Raised plaques of flying Mercury at the wheel, smilax and artificial flowers in profusion, flags, eagles and shields in great number, and scores of 20-foot oil paintings illustrating famous motoring incidents and scenes, will be used in the decorative scheme for the Atlanta show which opens November 6. The main floor center will have a row of posts supporting raised letter signs, the whole surmounted by artificial flowers. On the sides and ends will be a platform about 15 feet high with a rail above. The back ground of these spaces will be covered with green burlap to the height of the signs, this to be backed up by double rail fences. Half posts will be used to support signs, being covered to match those in the center. There will be the usual raised letter signs as in the center, the letters being individually cut and of a uniform size. There will be a profusion of flowers along this platform and above the signs partly hidden by the flowers will be a border of oil paintings, 8 feet high by 20 feet long. Above these pictures will be a strip of red burlap to the top of the balcony roof. Flags, eagles and shields will be used to relieve the top strip.

The balcony will be covered on the inside by pillars draped with flags and bunting. The signs will be the same as in the center, but will be double, showing the same from the inside, while the flower effect will also be put to use. The ceiling of the main hall will be profusely decorated with flags and bunting, the latter in strips forming artistic folds, while there will be hanging eagles and shields with effective decorative lighting.

Taft hall, which is one of the handsomest of its size in the country, and which is at the right of the main entrance to the building, will be treated in the same manner as the main floor. The ceiling of Taft hall will be decorated the same as the main building with a greatly increased amount of lighting over what is normally used there.

In the basement the same effect will be carried out as in the main part of the building, paintings, bunting, flags, eagles, shields and small pictures being used in profusion, some of them partially hidden by artificial flowers. The signs will be on the same order of individual raised letters, white on red.

As the visitors enter the main entrance they will be greeted by an artistic lighting effect, with flags and shields and artificial flowers arranged entirely different from what has been seen at motor car shows in the past. The same plan will be followed in the accessory divisions on the mezzanine and second floor and in Taft hall and basement. The floor covering will be of green denim with a red border, these floor coverings now being in the process of making. They will be laid, one piece in each exhibit, like a carpet. Even the denim for Taft hall will be made in one piece, fastened only on the edges, while the aisles in Taft hall will be covered with oil cloth.

The basement covering will be of green matting, while the accessory spaces will have green denim with the red border. Gilded rails will be used to divide the various spaces. Smilax will be used plentifully throughout the building, adding to the general color scheme.

There will be thousands of incandescent lights strung from the various parts of the building, to say nothing of the flaming arc lights both inside and outside of the armory. Exhibitors will be provided with desks and chairs in their exhibits.

PALACE SHOW DRAWINGS

New York, Oct. 11—At a drawing for space in the Grand Central palace show thirty-seven members of the American Motor Car Manufacturers' Association secured preferred space on the main floor, while more than forty makers not members of the A. M. C. M. A., and 125 accessory concerns, not included in membership of the Motor and Accessory Manufacturers, were allotted space on the first and second balconies. All records for space in shows were broken, as 305 motor car makers and accessory manufacturers were allotted space. At no time in the history of the palace show has the show committee met with as much difficulty in trying to satisfy demands for space as this year. An unusual demand was made for space

by members of the A. M. C. M. A. and other motor car makers. The Ford Motor Co. secured the first draw and selected the same space in which Ford cars have been exhibited for the past 2 years. Other concerns securing large spaces include Reo, Brush, Premier, Mitchell, Stoddard-Dayton, Maxwell, Jackson and Mora. Other members of the A. M. C. M. A. drawing preferred space include Oakland, Marmon, Regal, Pullman, Moline, Lambert, Atlas, Hupmobile, National, McIntyre, American Simplex, Austin, Pennsylvania, Moon, Cartercar, American, Holsman, Pierce, Chadwick, Glide, Standard, Ohio, Gaeth, Speedwell and Midland. Of the commercial motor car makers belonging to the A. M. C. M A. who secured preferred space on the first balcony are Rapid, Mack and Grabowsky.

As was the case last year, members of the Importers' Automobile Salon have secured a block of preferred space on the main floor which has been secured by Fiat, C. G. V., Panhard, Renault, Lancia, Isotta, de Dietrich, Clement, Delahaye, Delaunay-Belleville, de Dion, Hotchkiss, Zust and S. P. O.

Pleasure vehicle makers who were allotted space on the first balcony include Croxton-Keeton, Kisselkar, Inter-State, Klinekar, Benz, Black, Cameron, Coates-Goshen, Columbus, Crawford, Empire, Houpt, McCue, Everett, Sultan and Allen-Kingston. Commercial vehicle makers on the first balcony not members of the A. M. C. M. A. are the Gramm-Logan, Hart-Kraft, Lansden, Martin, Saurer, de Dion and Randolph. On the second balcony will be found not only accessory makers as in the past but the great demand for space has necessitated the show committee placing about eighteen makers of pleasure vehicles in this section of the palace.

Contracts for the spaces allotted are being mailed to the various concerns and applications which were not received in time to participate in the first allotment have been placed on the waiting list and will be cared for later by the show committee.

GASTE WINS SPANISH HONORS

Paris, Sept. 27—Gaste, of France, and his six-cylinder Rossel are the heroes of Spain's motoring world. The reason for this is that Gaste came back to la Belle France with the silver bowls or cups offered by King Alfonso and Queen Maria Christine. All this because he was the big winner of the 3-day San Sebastian meeting. On the first day there was a gymkhana, which was merely a society display. On the second day the real sport started with the holding of the hill-climb. It was held over a course of 2.3 miles up Igueldo hill and the average gradient was 9 per cent. The cars which took part in it made a most international affair, as no fewer than cars from seven countries tried to win for their owners some of the pesetas and cups. Gaste, in his Rossel six made the fastest time, 3:32. Spain divided honors with Great Britain, as Zuccarelli, in his Hispano-Suiza and Janne in his British Daimler, tied for second place, the time being 3:42. This last day was again Gaste's, as he made the fastest time in the kilometer trial, going the .62 miles in 28 seconds.

AFTER A STATE ROAD

Denver, Col., Oct. 10—The commissioners of El Paso county, Colo., appeared before Governor Shafroth last week and offered $6,500 as a contribution from El Paso county for the construction of a state road between Denver and El Paso counties. The last legislature appropriated $16,300 for the purpose of building a boulevard between Denver and Colorado Springs, and this action on the part of the El Paso county officials is expected to materially hasten the work. Governor Shafroth accepted the offer and wrote at once to the commissioners of Arapahoe and Douglas counties, asking that they each name a sum which they will be willing to appropriate for the same purpose. It has been estimated that at least twice the amount of the state appropriation will be needed to build a road of the sort contemplated and it falls upon the counties through which the road will pass to raise the additional money. The towns through which the road will pass must see that the connections between the road and their streets are constructed in the proper fashion, and when the road reaches the city limits of Denver, the city must pave the approach to it.

SIGNS FOR OREGON ROADS

Portland, Ore., Oct. 7—Secretary Will Lipman, of the Portland Automobile Club, of Portland, Ore., has received shipment of the road signs designed by him, and the assortment of more than a thousand will be distributed along the various roads radiating from Portland. October 4 was set aside for a planting bee. Every member of the organization was given one of the signs and standards to be planted at road points, and each motorist of the club is now responsible for at least three of the signs and posts. "Good road signs are signs of good roads," is the watchword of the Portland Automobile Club, and it has substantiated its theory in its unique collection of signs. Every color of the rainbow prevails in the assortment. Each color is fired on an enamel background measuring 26 by 3 inches. Across the face in legible letters are the various points of destination along the particular highway. At crossroads and dangerous points along the way adequate markers will be placed. The signs will be securely fastened to iron standards, with which the finish of the artistic signboards will insure durability. Over $2,000 will have been expended by the local organization of motorists when all the signs are placed in position along the country highways.

General Motors Co. in the Selden Group

New York, Oct. 13—Special telegram—While an announcement outlining A. L. A. M. plans is anticipated within the next few days, it is now known that the General Motors Co. group will be licensed makers. Whatever differences existed between the licensed body and the Buick company have been satisfactorily adjusted and the Olds Motor Works has been reinstated to active membership, which means that these concerns will be seen in the garden show for the first time in 2 years. W. C. Durant, the vital factor in the General Motors Co., is authority for the information.

Developments in relation to the Ford Motor Co. have been somewhat sluggish, which means that the situation is the same as it was before. Henry Ford preferred to carry the burden of the Selden suit himself without any outside assistance and apparently he intends to continue his attitude to its positive conclusion.

In the first story of the startling developments printed in Motor Age of last week seven A. M. C. M. A. concerns were given as assured new members of the A. L. A. M. These were Maxwell, Reo, Premier, Mitchell, Dayton, Jackson and Regal, which have been admitted to the ranks of the Seldenites.

The Regal being one of the latter entrants into the industry, it is understood that its licensed connection will be on slightly different lines to that of the others. In fact, the impression prevails that conditions governing not a few of the probable applicants may result in two kinds of membership. The continued healthy state of the industry is a condition generally desired and it is believed that the present direction of A. L. A. M. affairs will not be subjected to any radical interference.

On obtaining the order of the court's decree, the licensed association is meeting with a slight delay because of the change in name of the Electric Vehicle Co. to the Columbia Motor Car Co. While this has no effect whatever upon the decision itself, the delay rather interferes with plans which would have been put into effect so much sooner. The A. M. C. M. A. members who have joined the A. L. A. M. will retain their membership in the former body, and participates as usual in the Grand Central palace show.

"Membership in our association has nothing to do with the Selden patent," said Alfred Reeves, the A. M. C. M. A. general manager, "and twenty-five of our members might in the end become members of the A. L. A. M. also."

GLIDDEN TOUR PROTESTS ARE WITHDRAWN

NEW YORK, Oct. 9—The row over the last Glidden tour brought about by the protests of H. O. Smith of the Premier and W. H. Van Der Voort of the Moline against the Pierce-Arrow cars in both the Glidden and Hower divisions has been amicably settled by the withdrawal of the protests. This was announced following the 3-day session in this city this week of the A. A. A. contest board, which has given out the following official report of its actions:

The first protests before the board were those of H. O. Smith and W. H. Van Der Voort, entrants of the Premier and Moline cars, respectively, against the findings of the technical committee on the two Pierce touring cars and the Pierce runabout No. 108. Messrs. Van Der Voort and Smith withdrew their protests with the consent of all parties involved.

The protest of the Jackson Automobile Co. on the abandonment of the 300-mile race on August 21 at the Indianapolis motor speedway was next taken into consideration. After a full discussion it was resolved: "That, as Referee S. B. Stevens' action in the matter was done with the consent of the contest board through its representative at the meet, C. W. Sedwick, and in accordance with rule 53, page 13, of the 1909 contest rules, the action of the referee is hereby sustained."

Rule 53 referred to states that "after the receipt of entries no contest shall be abandoned without the consent of the contest board, except that on the day of the race the referee may order a postponement."

As the Jackson Automobile Co. had advertised that it won the 300-mile race at the Indianapolis motor speedway on August 21, 1909, despite the referee's decision of no race, and in violation of rule 55, page 14, of the contest rules of 1909, it was further resolved: "That the Jackson Automobile Co. is hereby suspended from entering any contest until January 1, 1910."

Rule 55, covering advertising, says that " all advertising matter which any entrant may publish or cause to be published, referring to any contest in which he may be entered must be in strict accordance with the official report of such contest. Any violation of this rule or publication of statements tending to mislead or misrepresent the facts shall render the manufacturer, agent, entrant, or any or all of them, subject to suspension for such time as the contest board may direct."

After careful consideration of the Chicago Motor Club's request for fixed penalties and other changes for its endurance run it was resolved: "That sanction will only be granted under the contest rules adopted June 10, 1909."

In the matter of the Premier Motor Mfg. Co.'s protest against the Quaker City Motor Club, both parties thereto were represented. The protest was on the penalties imposed for time in checking at controls after the blockade at Giant's Despair mountain. After a full presentation of the case it was found that the subject hinged on part of the instructions given the contestants by a representative of the club at the instruction meeting, wherein it was stated in substance that, owing to road conditions, if a blockade occurred to a contesting car by reason of a disabled car that the committee would take care of it. This left the matter of making up time or of establishing a new schedule entirely at the discretion of the contestants, and both methods were used after the blockade. In view of these facts it was resolved that the protest of the Premier Motor Mfg. Co. be sustained.

Relative to the appeal of the Dayton Motor Car Co. in the hill-climb contest of the Automobile Club of Cincinnati, two protests were entered against awarding the first prize to the Stoddard-Dayton on the ground that the car was not a stock car in the meaning of the definition in the contest rules, and the referee decided in favor of the appellants. From the evidence submitted by the makers of the car the referee's decision was sustained by the contest board.

On the report of the referee of the Brighton Beach races of August 27 and of a member of the contest board present, the entrant and driver of S. P. O. car No. 1 were each suspended to January 1, 1910.

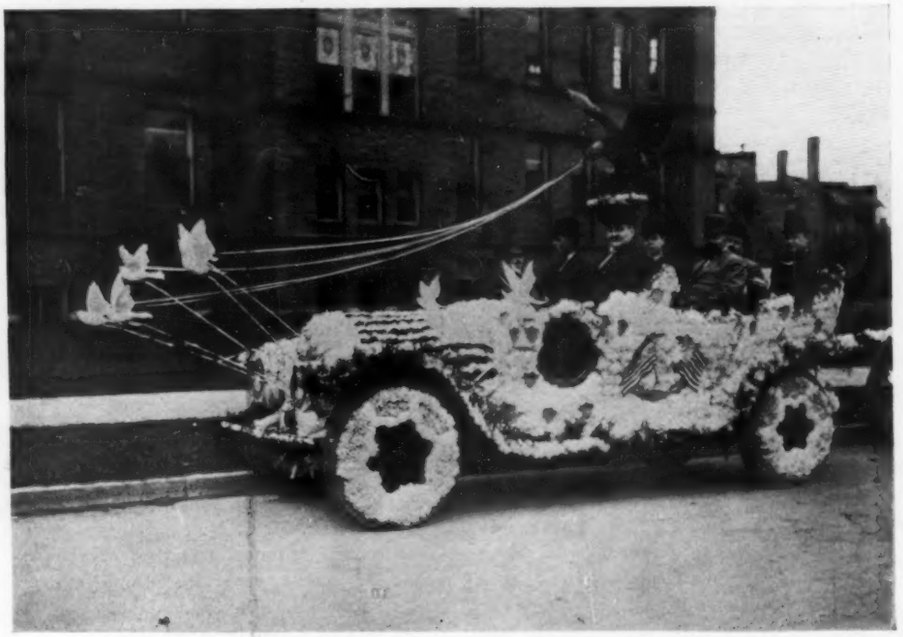
Views on Decisions

Chicago, Oct. 13—The apparent reason for the withdrawal of the Premier and Moline protest of Pierce cars was owing to the fact that the Pierce drivers had, during the tour, taken up the matter of lamps with Chairman Hower, who had given them permission to go without them until such time as he could arrive at a decision as to what should be done. As the matter had dragged for over 2 months and as the pushing of the protests would only serve to work an injury to the Pierce interests, which were not in any wise responsible for the unfortunate situation, it was agreed to withdraw.

The sustaining of the Premier protest in the Philadelphia run last January, coming over 9 months late, sustains the previous contention of this concern, although no statement has been given out as to whether the Matheson company has been notified to forward the trophy to Indianapolis which it has held in its possession since last January. It is considered unfortunate all around that the contest board should be so slow in rendering a decision of this nature, its action permitting one concern to make every use of the original findings in the run for 9 months, and at such time to declare that another car is the winner.

FRANCE NEEDS THE MONEY

Paris, Oct. 3—The French government is going to try and get from $250,000 to $350,000 annually from motorists, Frenchmen and foreign tourists as well. That is the latest development in the scheme for raising the much-needed extra revenue to cover the increasing deficit of France. Two projects are ready to be presented to the people's representatives when the chamber again gets going and the chances are that the project of the budget committee will be accepted. This project is divided into four sections. The first covers pleasure vehicles, the second taxicabs, the third cars belonging to foreigners and the fourth



CAR OF MAYOR RING, OF SHAKOPEE, MINN., IN ST. LOUIS PARADE

BEFORE AND AFTER PICTURES OF TURN CALIFORNIANS SPENT $10,000 TO STRAIGHTEN FOR ROAD RACE USE

motor boats. Section No. 1 is divided into two parts, the first covering cars of not over 12 horsepower and the second cars of more than 12 horsepower. Cars of 12 horsepower or less are to pay in Paris a tax of $10 if it is a vehicle seating one or two persons and $18 if seating more than two persons. In localities of more than 40,000 inhabitants the tax is to be respectively $8 and $15; in localities of from 20,001 to 40,000 inhabitants, $6 and $10; in localities of from 10,001 to 20,000 inhabitants $5 and $10, in localities of 10,000 or fewer inhabitants, $4 and $8. In addition to this tax there will be a supplementary one of $1 per horsepower from the first to the twelfth horsepower. The cars of more than 12 horsepower will be subject to the following tax: In Paris, if with one or two seats, $10, and if with more than two seats, $18. In all other cities or towns, respectively $8 and $15. The supplementary tax will be as follows: $1 per horsepower from 1 to 12 horsepower; $1.40 from 13 to 24; $1.80 from 25 to 36; $2.40 from 37 to 60, and $3 per horsepower above 60.

Foreigners coming to France with their cars will be subject to a tax of either $10 or $18 according to whether the car has one or two seats or more than two seats. They also will be subject to the supplementary taxes as applied to the French cars, and mentioned above. Foreigners' cars will not be subject to the taxes if the car does not remain consecutively more than 10 days in France. Otherwise the taxes will be levied, as far as the supplementary tax is concerned, in proportion to the time the foreigner remains in France. This time will be counted according to a 30-day schedule. In other words a car staying for instance 34 days will have to pay for 60 days. Taxis and cars used for hire will be assessed $16 per year if there are one or two seats, $20 if there are three seats, $25 if there are four seats, $30 if there are five seats, $35 if there are six seats or more. The trade papers already have taken up the matter of fighting these new tax projects.

California Interested in Big Road Race Next Week

San Francisco, Cal., Oct. 9—An immense amount of interest is being taken by the people of San Francisco and vicinity generally in the big road races which are to be held in Alameda county, across the bay, on Saturday, October 23, as the concluding feature of Portola week. The three classifications in the race, by which the smallest cylinder displacement is 301 cubic inches, has drawn a protest from some of the agents of the smaller cars who would like to have a chance to enter. Already plans are being made for the establishment of training camps for drivers and crews along the course of Alameda county. It is expected that arrangements will be made with the county and local authorities by which certain hours on certain days will be set aside during which the drivers can try out a little on the course. The course generally is of such a character, with its broadness and lack of many hard turns, that a great deal of work of this kind will not be necessary, but proper facilities will be afforded to all of the entrants to accustom themselves to what difficulties there are. The first camp to be established will be that of the Stearns. This car is to be handled by Charles Soules, who has been on the coast for the past year or so. Another that will soon be trying out on the course will be the Stevens-Duryea big six, which will be entered in the contest by President Costigan, of the Pacific Motor Car Co. It will again be in the hands of Clifford Onthank. A Buick will be entered by the Howard Automobile Co. and President C. S. Howard, who is just leaving for the east, will endeavor to secure some Buick cars.

Rapid progress is being made on the course and at one place $10,000 was spent to take out a dangerous S turn.

RALPH DE PALMA INJURED

Danbury, Conn., Oct. 9—An accident to Ralph de Palma in the 5-mile handicap put a damper on the motor car races here this afternoon. In this event de Palma tore down the track in a mile-a-minute burst of speed, when a tire burst, causing the Fiat to skid and crash into a fence. De Palma was hurled from his seat when the car struck the fence, and sustained a badly fractured hip. He may be injured internally. In the 5-mile handicap de Palma was giving a good account of himself and showing the crowd some real speed work. Brown in another Fiat and Wagner in a Columbia were fighting for first place at the finish, and de Palma with three cylinders working was putting up a game fight. On the fourth lap de Palma attempted to speed up, and succeeded in passing Brown and was hot after Wagner when the tire burst. Wagner in the Columbia was the first man over the tape, and Brown in the Fiat followed 10 second later. In the 2-mile event for cars costing from $850 to $1,250, Duncan Hooker in a Buick car finished first in 3:16¾. The 5-mile event for cars costing from $1,250 to $2,000 was won by Knipper in a Chalmers-Detroit in 7:56½.

BIG ST. LOUIS PARADE

St. Louis, Mo., Oct. 12—One thousand cars paraded the streets of St. Louis last Saturday as a closing feature of the city's centennial celebration. It is estimated that 600,000 persons saw the cars, most of which were gaily decorated, and the total value of which was about $2,000,000. There were 4,000 passengers in the machines exhibited. The pageant was lead by a dozen motor cycle policemen, who set the pace at a speed-breaking record. The first division of the cars, which followed a coterie of city officials, including Mayor Kreismann, consisted of decorated cars of the St. Louis Automobile Club. The club was represented by 200 cars, decorated with flowers, flags and bunting. The second division consisted of decorated pleasure cars. The undecorated and electric pleasure cars formed respectively the third and fourth divisions of the pageant. The fifth division was composed of municipal vehicles. Among the more strikingly decorated cars in line was that of J. A. Ring, mayor of Shakopee, Minn.

PHENOMENAL GROWTH OF TRADE IN SOUTH

ATLANTA, GA., Oct. 11—The development of the motor car business in Atlanta within the past year borders on the phenomenal. Two years ago Atlanta was like the average southern town with a few agencies and fewer garages. Now it is the acknowledged motoring headquarters of the south, with a national show coming, a 2-mile race track finished and many tours scheduled to end here in November. Developments have come fastest within the last couple of months and they have not lagged at all in the last week. Within a few hours of each other last week two contracts were closed for 50 by 100 feet garages, four stories high and absolutely fire proof. One of these will be occupied by the Olds-Oakland Co. It will be located at the corner of Cone and James streets and will be of reinforced concrete. This building will house the southern business of the Olds-Oakland companies. The other will be built for the Corker Motor Car Co., which will handle the Haynes car through most of the southern territory and the Matheson in Georgia. A new garage is also being built for George W. Hanson, representing the Studebaker interests and the Benz car in Georgia. For several years past Atlanta has been the southern headquarters for most of the big tire makers but until recently the Diamond Tire Co. has not had a southern branch. However, a new building is just being completed on Auburn avenue for this company and a southern branch will be established there. W. F. West, of Mobile, who formerly travelled the territory for the Diamond company will have charge of the Atlanta office permanently.

The Overland Southern Co., a new concern, is planning to move soon into the big Peachtree Auditorium garage. The Stevens-Duryea agency is reported to be out after a Peachtree street location. Steinhauer & Wight, agents for Packard, Cadillac and Pope-Hartford, will within a few weeks move out of the Peachtree Auditorium garage and into their new salesroom on Peachtree street. The Olds-Oakland company has, within the week, moved into its new show room on Peachtree street. T. J. McConnel, Brown Randolph building, has taken the agency for the Moon. R. C. Edwards and W. J. Dabney have recently taken charge at 98-100 South Forsyth street, where they will sell the Cole and High Point companies' products. The work is progressing rapidly on the Speedwell garage and the Georgia agency will soon begin active operations. H. Haas has within a couple of weeks opened a garage in the Masonic temple, where he sells Wintons and Rauch & Lang electrics. J. P. Matthews and R. L. Logan, with offices in the Century building, have taken the agency for the Pennsylvania and will soon have a location on some prominent street. The Atlanta Motor Agency at 88 North Pryor street, has within a few weeks opened a garage for the sale of the Mitchell. The Southern Auto and Equipment Co. has recently been established as the southern representative of the Lambert. The Stearns agency has also changed hands, passing from Ed Inman to Dunn & Son.

PORTLAND CONDITIONS

Portland, Ore., Oct. 9—The demand for motor cars is steadily increasing, which establishes a precedent for early sales in Portland. In previous years buyers have waited until the middle of February before bestirring themselves for cars. The reason for the active market can be attributed leargely to the urging of the dealers to "buy early and not be dissappointed in spring, when a shortage is sure to come." Three new agencies established, one about to enter and a change of management is one are the changes noted on the row in the past month. The first car to come was the Speedwell, which will be handled by the recently organized Thompson-Cuthbert Motor Car Co., which has signed a contract with the Speedwell factory for fifty cars. The first out-of-town agency was established at Salem, with W. C. Beckett, and others are soon to be placed throughout the Willamette valley and eastern Oregon. The Firestone is the second of the new September cars, and the agency will be handled here by C. B. Lloyd, head of the Lloyd Auto Co., the largest motor car livery company in Portland. The Regal, the third of the newcomers, will be represented by Fred Gumbert, a member of the Auto-Garage Machine Works, better known as the Tourist Motor Car Co., but recently reorganized and incorporated with Roy S. Wilson as president; Fred Gumbert, vice-president, and R. C. Wright, secretary. Wilson will continue to handle the Tourist and Gumbert, the Regal. The flying trip to Seattle and Portland made by Murray Page, Pacific coast manager of the Locomobile, with headquarters at San Francisco, was not unproductive, for the Portland agency of the car has been transferred from Roy S. Wilson to E. A. Neate and O. E. McCarthy, of Spokane and Seattle. The new agency will occupy part of the Auto-Garage Machine Works garage.

Many of the companies are not paying much attention to city sales, but are devoting their efforts toward the establishment of out-of-town agencies. The Northwest Buick Co. has been the most active in this line, and agencies have been placed with Otto Wilson, at Salem; J. L. Irvin, Albany; Moullen & Zacharias, Eugene; F. A. Seufert, Jr., the Dalles; Mitchell & Stuller, Everett, Wash.; W. H. Halliday, Baker City, and the Northwest Auto Supply Co., Spokane. These firms have signed contracts with the local company for allotments of from ten to fifty cars. Forrest Smithson, manager of the Oregon Hupmobile Co., has gone for an extended trip through the Willamette valley as far south as Ashland. In the cities of any consequence along the line, he intends to establish agencies, and from present indications the local prospects for the Hupmobile are excellent.

It is interesting to note the rush for the suburban business by all the dealers. Not more than 18 months ago one of the first country agencies, the Maxwell, was opened at Salem, and for a short time everybody awaited the news of its failure. But, contrary to expectations, it paid, and paid so well that other dealers hurried to find footholds in the outlying territory, and not a failure has been noted, a remarkably good record for a country just awakening to the real importance of the motor car.

The taxicab situation in Portland also presents some very interesting facts for consideration. Such a thing as a taxicab was unknown in Portland last April. Today two companies are in the field and another about to open. The Oregon Taxicab Co. was the first to enter, with six Fiats of the ordinary taxicab model, and an additional six have been ordered and are on the way. By the first of the year the company will possess twenty cars, according to present intentions. The Portland Taxicab Co. opened its garage June 1 with six Renaults, and this number has been increased by four, with another six en route. The latest addition to the business is the Ilton Taxicab Co., owned and managed by Charles Ilton. The new garage will open October 1 with six Franklin taxicabs, the first of which has been delivered by the local Franklin company. More will be purchased when the business warrants. These taxicab companies do not include the motor deliveries companies and the half a hundred or more cars for hire by their owners, with stands on prominent street corners about the city.

KANSAS CITY GOSSIP

Kansas City, Mo., Oct. 11—The date of the show here has been changed to the first week in March. This is a week later than first announced.

The Midland Motor Car Co. moves October 15 to its new quarters, 1523 Grand avenue. A. B. Penfield is the manager of the company, which represents the Peerless, Matheson, Chalmers-Detroit, and Hudson motor cars.

In spite of the bankruptcy of the A. H. Kagy Motor Car Co. recently, the Sterling is still to be handled in Kansas City. The maker has established its western sales agency in this city and has put J. F. Lakin in charge of the branch. One of the most surprising changes was the announcement of a shift in the agency of the Stevens-Duryea, E. P. Moriarity & Co. losing the representation and Nolan-Rieke Motor Car Co. gaining it. The company was only organized recently when it was

learned that M. C. Nolan had been selected by the factory as the western distributor.

Eight carloads of 1910 Overlands were received by the southwestern agent, H. G. Kirkland, this week. The Chase motor truck is represented by the Western Commercial Motor Co., of which O. H. Gray and Ernest Le Compte are the managers.

Interesting changes are soon to be made on East Fifteenth street's row. In a building to be erected at 1011-1013 East Fifteenth street, Goodrich tires are to be sold. The building will measure 40 feet by 120 feet and will have two stories and a basement. Across the street on the northwestern corner of Fifteenth and Harrison streets is to be the headquarters of the Rambler and the Kisselkar. The Rambler is to have the corner with a 45-foot frontage and the Kissel will be next door with 40 feet. They are to have a new two-story building, too, for which the plans already have been drawn.

LINEUP IN INDIANAPOLIS

Indianapolis, Ind., Oct. 11—Practically all of the 1910 motor car agencies in this city have been decided, and very few changes are noted over the 1909 agencies. Two companies, the Studebaker and the Maxwell, are building branch houses, the first to cost $124,000 and the latter to cost about $60,000. Agencies in this city next season will be as follows:

Fisher Automobile Co.—National, Stoddard-Dayton, Empire, Baker and Overland.
Hearsey-Willis Co.—Rambler, White, Mitchell, Waverley and Hupmobile.
Willis-Holcomb Co.—Apperson and Packard.
Indianapolis Automobile Co.—Cartercar and Brush.
Indianapolis Motor Car Co.—Rapid and Empire. Commercial cars only.
Indiana Automobile Co.—Chalmers-Detroit, Thomas, Autocar and Hudson.
Finch & Freeman—Auburn, Richmond and Haynes.
State Automobile Co.—Oakland.
Peck Motor Car Co.—Cadillac.
Gibson Automobile Co.—Ford, Regal, Reo, Premier and Marion.
Motor Car Sales Co.—Peerless.
Jackson Automobile Co. Agency—Jackson.
Sterling Motor Car Co.—Firestone and Cole.
Parry Automobile Co.—Parry.
Nordyke & Marmon Co.—Marmon.
Maxwell-Briscoe Motor Co.—Maxwell.
Conduitt Automobile Co.—Knox.
Morton Place Garage—Moline.
Studebaker Brothers Indianapolis Co.—Studebaker-Garford, Studebaker E-M-F and Studebaker-Flanders.
S. J. Summers—Holsman.
Enger Buggy Co.—Enger.
International Harvester Co.—International.
Van Camp Hardware and Iron Co.—Randolph.
Coppock Motor Car Co.—Coppock.
Buick Motor Co.—Buick and Oldsmobile.

MILWAUKEE CHANGES

Milwaukee, Wis., Oct. 12—Several important and interesting changes have just been completed in the Milwaukee motor car field. The Kopmeier Motor Car Co., which was incorporated for $50,000 last year and built the largest garage in Milwaukee at 375-389 Summit avenue, has increased its capital stock to $100,000. A. F. Timme, of Milwaukee, takes a heavy interest and has been elected vice-president and general manager. Besides the American and the Detroit electric, the company will handle the Velie. The Kopmeier interests, with Mr. Timme, have purchased the entire interest and store of the Ogden-Farwell garage, a Wisconsin corporation capitalized at $10,000. Mr. Timme also will be general manager of this company, which has a large garage at 82-86 Farwell avenue. The officers of the two companies are identical, Norman J. Kopmeier being president, A. F. Timme vice-president, and Waldemar S. Kopmeier secretary and treasurer. The Ogden-Farwell garage will handle the Chalmers-Detroit, Hudson and the sub-agency for the Detroit electric. The companies will be distinct in operation, although the ownership is practically identical.

The W. L. Hibbard Motor Car Co., 417-421 Wells street, Milwaukee, which has been handling the Chalmers-Detroit and Hudson, and previously also the Thomas, is closing out its stock, the two first-named lines going to the Ogden-Farwell garage. W. L. Hibbard retired from the company on July 1. It cannot be ascertained what disposition will be made of the big new garage on Wells street, which has been occupied only 6 months.

The Kopmeiers now become one of the largest motor car concerns in the northwest. Besides its Milwaukee business, the Kopmeier Motor Car Co. operates a large agency and garage in Chicago, from which it distributes the American. It is reported that besides covering the entire east side district of Milwaukee with garage facilities the Kopmeier company is planning to invade the fruitful west side field, either by purchasing one of the large garages on upper Grand avenue or by building one of its own. The garages now under its ownership and control contain nearly $25,000 worth of machinery and equipment for the care and repair of motor cars.

The Studebaker E-M-F and allied lines, which have been carried by the Ogden-Farwell garage, have not been placed for 1910.

Two Ramblers Tie With Perfect Scores at Louisville

Louisville, Ky., Oct. 12—Two tied with perfect scores even after the technical examination is the result of the first reliability run of the Louisville Automobile Club which was completed Saturday night. The two that tied for the main trophy, the Herald cup, were two Ramblers, one owned by Prince Wells and the other by Harry Ropke. Third place went to a Reo entered by the Reimers Motor Car Co., which was penalized 1.1 point. Marshall Clark's Maxwell drew 53 points. Ira Bennett, driving a Cadillac, took the Evening Post economy trophy, a challenge cup which must be won three times to become the possession of the winner. Bert H. Strauss won the owners' trophy which was offered by the Louisville Automobile Club. Strauss drove a Rambler 44.

The contest covered a total of 367.4 miles and was run on 2 consecutive days, October 8 and 9. The route was laid through Kentucky and passed through the blue grass section. The roads were good, bad and indifferent. In some instances the second gear came into use for miles at a time. There were twenty-seven entries in all, including the following makes: Reo, Rambler, Cadillac, Great Western, Hupmobile, Buick, Maxwell, Stanley, Haynes, Rapid truck, Brush and Packard. All finished and quite a few with nearly perfect scores.

The run was the first of its kind in Kentucky and proved a thorough success in every particular. The contestants experienced no little inconvenience from dust in some places, there being nearly 6 inches of it on the road. The first day's run went from Louisville to Bardstown, Springfield, Lebanon, Perryville, Danville, Harrodsburg, Nicholasville, Lexington, Paris and Winchester, where the night was spent, 170.2 miles. Leaving Winchester the run passed through Mt. Sterling, Flemingsburg, Maysville, Paris, Georgetown, Frankfort, Shelbyville to Louisville, totaling 197.2. Mrs. Harvey Meyers, of Covington, the only woman contestant, went the entire route in her Buick and but for an unfortunate misunderstanding of the rules would have had an excellent chance of winning the economy contest.

VANDERBILT PERMIT GRANTED

New York, Oct. 12—The final obstacle to running the Vanderbilt cup race this fall has been removed. The board of supervisors of Nassau county, on Long island, has granted permission to hold the contest October 30. The course for which permission was granted is 12.64 miles long. This course will be open for practice 10 days before the event and contestants will have permission to exercise their cars between 5 and 8 o'clock each morning with the exception of Saturday. The Motor Cups Holding Co. will be compelled to deposit a bond of $100,000 to indemnify the county against possible damage suits and it also must guarantee to replace the roads as they were before the race. Every effort will be made to safeguard the course during the practice and it is announced that any violation of the training rules will mean the disqualification of the driver who is guilty of the infraction.

CUP GIVEN MUNSEY WINNER

Philadelphia, Pa., Oct. 11—At the Quaker City Motor Club last Saturday night, Gawthorp & Wister, local Elmore agents, presented a handsomely designed solid silver punch bowl to Frank Hardart, Jr., in recognition of his sterling work in capturing the premier honors in the recent Munsey run from Washington to Boston and return. It will be recalled that Mr. Hardart's car finished that strenuous journey without a solitary road or technical penalty recorded against it—a most meritorious performance for car and driver, especially in view of the fact that Mr. Hardart is an amateur. Mayor Reyburn made the speech of presentation.

The Readers' Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

CLEANING MOTOR CYLINDERS

LEXINGTON, Miss.—Editor Motor Age—I have an Overland model 32. In cleaning carbon from the cylinders with kerosene I have proceeded as follows: I started the engine running and poured a small stream of kerosene in the air intake of the carbureter, not enough to choke the motor but in all suppose I used about 1 pint of kerosene. Upon removing the valve covers afterwards, I found the valves and compression chambers clean. Is this a good practice? Will the kerosene get down in the crankcase? I have used a carbon remover very successfully, apparently one that is very extensively advertised in the motor journals. Of course kerosene is cheaper and less trouble and provided it does the work will only use the carbon remover at longer intervals. I will be glad to have the opinion of Motor Age on this. —Hal A. Gilliam.

Any method of using a decarbonizer which produces good rsults is all right. Most of the kerosene you used was consumed as fuel, being vaporized along with the gasoline. The amount of kerosene used was unnecessary as but a few tablespoonfuls would be needed if it were injected direct into the cylinder. It is impossible to state whether any kerosene got into the crankcase without knowing the speed at which you poured it into the air intake, and if it did not have any opportunity to escape from the carbureter.

NEW TWO-CYCLE DESIGN

Pittsburg, Pa.—Editor Motor Age—Being interested in the two-cycle engine, I notice a patent, No. 894,682, that is quite a change in its mode of operation from other forms of gas engines, it being of the vertical type with piston rod and cross head. The upper end of the cylinder is the combustion chamber, the lower end is an air pump. The inlet and exhaust ports are both operated by a slide valve operated by an eccentric, but the exhaust port is situated on the side of the cylinder half way of the piston stroke, giving one-fourth revolution, time for the exit of the burnt gas. The piston head brings up the gases below the exhaust port, and the air from the lower end of the cylinder led by a pipe up to the inlet port blows out the gases above the exhaust port with those from below, having enough air in the combustion chamber for the next explosion; as the compression stroke is only one-half of the power stroke, this also allows expansion. The gasoline is pumped through a spraying nozzle during compression stroke. What is the opinion of Motor Age as to the efficiency and practicability of such a design? Is the fuel injection system a success as to economy and efficiency under varying conditions?—C. A. Wentley.

Fuel injection is giving most satisfactory results in motor boat work but is not doing much in the motor car realm. In stationary work with a constant load it offers no troubles, but those who have experimented with it for car purposes have eventually given it up. This pump type of two-cycle motor is used to secure better scavenging of the cylinders. In two-cycle work the proper dispelling of exhaust gases and securing of an adequate explosive mixture have been two of the big problems to wrestle with. One of the strong arguments in favor of two-cycle work has been simplicity obtained by freedom from valves, but introducing such in the design referred to would tend to go directly against the two-cycle aim.

CONTACTS IN COMMUTATOR

Irene, S. Dak.—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following questions: 1—How long a contact is best at the commutator, and is it supposed to spark at the plug at the beginning of this contact? 2—Is it necessary that both points in a commutator be platinum? 3—Are four cells as good for a Splitdorf single coil as six or more?—C. A. McChesney.

The length of contact on a commutator is very slow. With the roller type the fixed segment is rarely more than ½ inch in length. The length of time required for a revolving contact to pass this is very slight and there is no definite point at which the spark should take place, it being positive that there is sufficient contact to insure a spark. It is not necessary for platinum points to be used in a commutator; in fact, they rarely are. Hardened steel is generally used for these points. The Splitdorf single-unit vibrator coil is wound for 4 and 6 volts, and Motor Age would suggest your using four dry cells which would give 6 volts. If you use six cells, there would be 9 volts and the only object in using six cells is that you would get a little more efficiency, but this higher voltage would destroy the platinum on the vibrator.

BARGE USED CROSSING RIVER

ELECTRIC TAIL LIGHTS

Omaha, Neb.—Editor Motor Age—Will Motor Age inform me as to the number of cells necessary to light a tail lamp? How should these cells be connected? What kind of wire should be used? For what sum could I wire such a lamp? What is the maximum speed of the 1909 model 17 Winton six? Would it pay to retread two 4½-inch tires which have been run 3,000 miles with about 50 pounds pressure in them?—Subscriber.

Assuming that you mean dry-cells, the number of cells required to light a tail lamp will depend upon the voltage for which the lamp is designed. The lamps generally used for motor car lighting are designed for a current with a pressure of 4 or 6 volts; therefore, at the rate of 1.5 volts per cell, three or five cells would be required respectively. The cells, in order to give the greater voltage, would have to be connected in series-multiple; that is, the negative of one cell would have to be connected to the positive of the other, etc. Rubber covered duplex wire No. 12 should be used, which retails at about 5 cents per foot. If you intend to install the system yourself, the fittings for one tail light, consist of: socket, base to fit into oil fount, cord and plug connector, one single-circuit surface snap switch, say about 16 feet of rubber covered duplex wire and one 6-volt Tungsten lamp. This, the material for an outfit complete without the battery, would cost you from probably a little more than $3 to $4.50, according to the refinement of the material employed. A few words now on the impracticability of dry-cells for lighting purposes may be appreciated. Dry-cells are not practical for lighting purposes, because one set of dry-cells hardly will last as long as one charge of a storage battery, and as they are not designed to give out a constant current they will not be found as efficient. When you consider that for the price of four or five sets of dry-cells a fairly good storage battery can be purchased, it is plain that in the long run a storage battery is much less expensive. The maximum speed of the 1909 model 17 Winton six is 55 miles an hour. As to the retreading of the two

tires, that depends entirely upon the condition of the tires, and it would be advisable to take them to a local agent for his inspection and advice. Fifty pounds pressure is not enough for a tire of the size of yours. Ninety pounds pressure is required for 4½-inch tires, and if you will provide yourself with a tire gauge which would cost you about $2, and then see that your next set of tires contain the required pressure, you probably will get two or three times the wear out of your tires.

FRONT CYLINDERS GET MORE OIL

Centerville, Ia.—Editor Motor Age—Will Motor Age tell me through the Readers' Clearing House why the two front cylinders in my model 17 Buick are much better lubricated than the two rear ones? They also have better compression. I have had the bottom of the crankcase off and it seems to be all right.—Ernest Widmer.

Motor Age is informed that there is a transverse web in the lower portion of the Buick model 17 crankcase, and that the oil in its circulation first passes into the forward section. The level in both sections is maintained by means of a hole in the transverse web. Should this hole be stopped up it is plain that the front cylinders would get plenty of oil and rear cylinders not enough. This lack of lubrication in the rear cylinders would also account for the poorer compression.

FURNISHES ROAD INFORMATION

Louisville, Ky.—Editor Motor Age—Readers of Motor Age may be interested in the 3,500-mile trip I made this summer from here to the White mountains, New Hampshire, and return. The trip to White mountains and Washington on the return stage was not interesting, but from Washington here the roads presented remarkable conditions. The outward journey was by way of Indianapolis, Columbus, Cleveland, Buffalo, Syracuse, Albany, New York, each constituting a daily stage. From New York the course was through Bridgeport, Conn., New Haven, Hartford,

PICTURESQUE TOURING

Springfield, Mass., and Greenfield. After leaving Greenfield we journeyed back and forth across the Vermont-New Hampshire line, crossing the Connecticut river not fewer than six times. From this section up to Bretton Woods, N. H., the roads were in excellent condition. Our return route was from Bretton Woods to Portland, through dense mountain forests and narrow passageways, and through 9 inches of sand. From Portland, the southern journey was through Portsmouth, Boston, New London, to New York. The New York-Washington stage was by way of Philadelphia and Baltimore, and 2,336 miles of the run was covered when the capital was reached.

The real change in the trip came in leaving Washington, and as we wanted a change with a little roughing in it, we started with a full camping outfit and all kinds of tools to build roads. Our first day's run was to Stanton, Va. From Washington to Winchester there are bad, rocky hills. We crossed the Potomac river on a little flatboat. From Winchester we passed through a beautiful valley with the Virginia mountains on each side, and drove through a hailstorm and several showers, covering 177 miles. The second day's run, from Stanton to Roanoke, was 98 miles. Passing through Lexington on to Natural Bridge, where we took lunch, the road is very hilly and hard to travel; we crossed about thirty streams which could only be done in dry weather. The third day was from Roanoke to Marion, 115 miles. Here is where the real fun started, for we had no guide to go by and the natives knew nothing of the world 10 miles from home. The roads were very bad and rocky and we had many streams to cross. We passed through Christianburg, Pulaski and Rural Treat. The fourth day, from Marion to Mendota, was but 50 miles. From Marion to Abington, 28 miles, the roads are fair, but from there on to Mendota, 22 miles, it is bad. It took the whole day, and without a mishap, but it seemed as if it would rock the car to pieces.

The fifth day, Mendota to farms within 4 miles of Pattenville, covered 35 miles. At Mendota we had to send to Briston, Tenn., for gasoline. This was a hard day's work. We had to roll big rocks out of the way and even chop some down. One had to walk in front of the car most of the way to watch the clearance. The 3 miles through Troublesome creek were almost impossible. According to the farmers, we were the first people that ever drove through on our own power. We stayed at a farm house all night. The distances are: Mendota to Yates City, 18 miles, to Speers Ferry 10 miles, to Clinchport 3, and to Pattenville 8 miles.

The sixth day, Farmhouse, near Pattonsville, to Middlesboro, Ky., was 61 miles over the Powell mountains, and it was the roughest and most dangerous we went over. Several places we had to take chances going over the side of the mountain to get around big rocks, and the rocks being full of moss and damp made it extremely difficult. When we got to Strickleyville we were told we went through a valley, but we went over one ridge after another. Arriving at Powell river we thought we were up against it

TOUGH GOING ENCOUNTERED ON 3,500-MILE TRIP FROM LOUISVILLE TO WHITE MOUNTAINS AND RETURN

to get to the Ferry. We had to go down a hill so bad that with the rear wheel locked the car would slide sideways or forward, and when it would drop in a washout rut it looked certain that something would let go. We finally got on the raft. When we got to Cumberland Gap it was dark. A new government road made it swell going to Middlesboro, Ky. Distances: Pattenville to Stickelyville, 7 miles; to Jonesville, 14 miles; to Cumberland Gap, 37 miles, and to Middlesboro, 3.

On the seventh day, from Middlesboro to Barberville, 26 miles, the road is the one that stopped all motor cars coming from the Kentucky side. It is hard to get over on account of the damp slanting slate. Several cars have attempted the trip. This is the only place we did any repairing. We put on and made new brake bands, so we did not get away before noon. Before going into Barberville we had to cross a high bridge which was being repaired and had only single boards for the wheels on which to run.

On the eighth and ninth days, from Barberville to Louisville, Ky., 208 miles, we went over the same mountain roads, looking for Richmond. From Barberville to Corbin, then to London, then to Pittsburg we went. Then we were told to go to the ferry to cross Rockcastle river. When we got to this point there was nothing but a ford. The water looked too deep, but we dreaded to think of going back over that terrible road, so we took a chance and when we got to the middle one of the wheels slid off a rock and fell in a hole. Water got to the magneto and we died. Luckily there was a fishing camp right above the point and the fishermen came to our rescue. Inch by inch we rolled the car out. Our crankcase was full of water, so by the time it was properly drained and filled and the wiring and magneto dried, darkness overtook us. We were just starting up Big hill and it certainly was one tough road for night riding. We got lost four times. One place the hill is so steep that the gasoline could not get to the carbureter, but good luck was with us for we had a pressure pump and were moving along very soon. We pushed along slowly as far as we could, guessing at the road until we thought we were lost, so we sat in the car, laid our heads on the back of the seat, propped our feet up on the dash and slept like a couple of kids in a big pile of hay. Day broke in about an hour and a half and we started down Big hill. We slid down sideways and every old way; some places the car was at such an angle that I could hardly stick to my seat, but Richmond was not far away, and we worked hard. We ate breakfast in Richmond and, of course, then it was easy to make Louisville that afternoon, completing a 3,500-mile run. We ruined one set of brake bands, twisted the frame a little and used five extra tires.—C. P. Doerhoeffer.

LAW FOR OIL LAMPS

Detroit, Mich.—Editor Motor Age—We understand that the laws of some states force all carriages and buggies to use side oil lamps and we wish Motor Age would kindly advise us what states are affected by this law.—Western Sales Co.

So far as Motor Age knows there isn't a state in the union that has a law compelling vehicles other than motor-driven to carry side oil lights, although in nearly all of the larger cities there are ordinances demanding this. In some these ordinances are enforced, which is greatly appreciated by motorists, but in others it is a dead law on the books. As explained by an attorney, the reason why such laws are not made by states is that no measures affecting the running of horse-drawn rigs are passed. With the motor car that is different. It was found that it was necessary to pass laws restraining motor speed and as a matter of course and while the subject was under discussion the legislators tacked on the provision regarding lights. Special legislation like this never has been needed for horse-drawn vehicles; consequently it has remained for the various cities to work out the matter for themselves.

STRAPS DRIVER IN SEAT

Milwaukee, Wis.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, state if a racing driver has ever been strapped or fastened into his car in a race? A party claims he has seen a driver strapped into his car, but I do not believe it as I think it would be a great disadvantage.—H. Mueller.

No racing driver ever has used the straps to hold him in the car. The steering column is sufficient to do this.

OILS FOR CLUTCHES

Rushville, Ind.—Editor Motor Age—Through the Readers' Clearing House will Motor Age give me the names of the different kinds of oil used in multiple-disk clutches of various makes. I have a Franklin, model H, and so far have been unable to find an oil that will act smoothly and prevent the clutch from grabbing, especially when going into the intermediate gear.—A. B. Irvin.

In most types of multiple-disk clutches whose disks operate in an oil bath, no special brand of oil is recommended. The oil generally specified is the oil used in the cylinders, with an addition of kerosene when a tendency on the part of the clutch to slip occurs. Monogram oil is the cylinder oil recommended by the Franklin company and it is advised that you clean out the old oil from your clutch case, then replace about two gunfuls of Monogram oil. If this is still too light and the clutch still grabs, replace with the same amount of cylinder oil of a trifle heavier grade.

NEW YORK-PARIS DRIVERS

LaCrosse, Kan.—Editor Motor Age—Will Motor Age give me, through the Readers' Clearing House, the names of the drivers of the Thomas Flyer car in the New York-Paris race, also the route through the United States?—F. M.

Montague Roberts, Linn Mathewson and George Schuster were the drivers of the Thomas car in this race. The start was made from New York, thence via Albany, Rochester, Buffalo, Cleveland, Toledo, Chicago, Clinton, Omaha, Cheyenne, Granger, Ogden, Reno, Carson City, Goldfield, Crucero, Daggett, Mojave, Saugus, Santa Barbara, San Jose and San Francisco, a distance of 4,300 miles.

STREET INTERSECTION LAWS

Denver, Colo.—Editor Motor Age—The enactment of a law establishing the right of way for vehicles at street intersections is both new and important. Laws have been passed covering almost every situation or condition arising in vehicle traffic except where two or more vehicles meet at street intersections, and this situation seems to have been generally overlooked. Denver, with one motor car to every eighty of its population, is the first city to realize the necessity for such a rule of the road and has accordingly enacted an ordinance defining the rights of vehicles at street intersections. Section 1703 of ordinance No. 124 covering this point reads as follows: "It shall be the duty of every person driving any vehicle, when approaching any intersecting street, alley, or public way, to halt or slow up and allow any other vehicle approaching along the intersecting street, on the right, to have the right of way." In addition to the above mentioned excellent rule, this ordinance No. 124 requires an overtaken vehicle to turn out to the right when signaled to do so by a vehicle approaching from behind. Also, in common with New York, Boston and Chicago, all slow-moving vehicles must keep close to the right-hand curb to allow room for the passage of faster-moving vehicles on the left.—Lewis Searing.

MAKES MASTER VIBRATORS

Cleveland, O.—Editor Motor Age—We note on page 20, Motor Age, September 30, your answer to the query on manufacturers of master vibrators and wish to state that our company has manufactured master vibrators for 3 years, which is known as the K-W.—K-W Ignition Co.

H. L. C., MESSENA, IA.

Communications addressed to H. L. C., Messena, Ia., are being held in Motor Age office for the full name and address of party.—Editor.

MOTORISTS' DEFENSE AGAINST JACK FROST

YEAR after year, as the winter comes on, the question of the freezing of the cooling water in radiators, waterjackets and pumps is discussed anew. It is a serious matter and a feature in motoring that will ever have to be dealt with unless perchance oil or some other medium will ultimately be found to displace water, in summer and winter alike. Timely warning, therefore, at this season of the year is necessary regarding the bursting of radiators and waterjackets from the expansion of the freezing water contained therein. This can be positively prevented by the use of anti-freezing mixtures, of which there are a number. The most widely used and easily obtained preparations are calcium chloride, glycerine and wood alcohol, the last named being the most favorable because it has no injurious effect on either the rubber connections, the metal piping or the waterjackets of the cylinders; whereas calcium is apt to attack the metal, and glycerine in time dissolves the rubber hose connecting the engine with the radiator.

The Wood Alcohol Solution

The alcohol solution is usually preferred because it does not damage the metal of the waterjackets, radiator or connections, and has no fault except that it evaporates. Wood alcohol differs from glycerine in one very essential particular in that it is the wood alcohol that boils off instead of the water. This is a misfortune, since it answers every purpose in every other way. It can be used in either small or large quantities, according to the occurrent drops in temperature of the latitude in which it is employed, and the following will give a good idea of what may be expected of the various proportions of the mixture:

Percentage in water	Freezing point
10	18
20	5
25	— 2
30	— 9
35	—15

A 40 per cent solution of alcohol will withstand a temperature of 24 degrees below zero; but in general a 25 per cent solution will be sufficient for all occasions. In many cases, one filling of the radiator with an alcohol solution has lasted throughout the entire winter; but should any loss of radiator supply occur, it should be replaced with equal parts of alcohol and water.

Calcium Chloride and Water

Calcium chloride, $CaCl_2$, is a very effective cooling agent, but unless the chemically pure article is used there is danger of corrosion of the metal with which it comes in contact. Crude calcium chloride retails at about 8 cents or 10 cents per pound, but the chemically-pure article is worth about 25 cents a pound in small quantities. A solution of 5 pounds of calcium chloride to each gallon of water will not freeze at any temperature above 39 degrees below zero; but the following table will aid in preparing the proper solutions for the different temperatures:

Anti-Freezing Solutions

For each gallon of water	Freezing point
1 pound	27
2 pounds	18
3 pounds	— 1.5
3½ pounds	— 8
4 pounds	—17
5 pounds	—39

A convenient way to prepare the solution is to first make a saturated solution of the calcium chloride and water, that is to mix with a quantity of water warmed to 60 degrees Fahrenheit all the calcium chloride the water will dissolve, and use equal parts of this saturated solution and pure water, regular hydrant water, in the cooling system of the motor. If chemically pure calcium chloride is used no trouble will result; but chloride of lime, $CaOCl_2$, often sold as pure calcium chloride, should be avoided.

Glycerine and Water

Glycerine is an effective cooling agent and as it will not crystalize in the waterjackets it is preferable in this respect to calcium chloride and it has the further merit of not requiring any renewal during the season, as it does not evaporate. It is therefore only necessary to add pure water to replace that which has evaporated. Several solutions of glycerine and water with regard to degrees of cold in which they may be safely used are as follows:

Percentage in water	Freezing point
10	28
30	15
40	5
50	— 2
55	—10

These solutions work very well indeed, although it is true that the glycerine does attack the rubber hose joints, but not so rapidly as to become overtroublesome. In using a glycerine solution care should be taken to thoroughly cleanse the jackets of any residue of crystals from calcium solutions previously used, as this residue will thicken and cloud the glycerine solutions and render them partially ineffective. Solutions of glycerine will thicken up when subject to low temperature, but will not solidify, and unless it does it will not disrupt the piping of the radiator or the jackets of the cylinders; and as the slush formation passes through a gear pump with apparent ease, this being probably the most constricted and consequently the most troublesome point in the system, the circulation is not noticeably impaired. If a system gets hot with a solution of this kind it is the water that boils off, and to replace the same is all that has to be done for about 3 months. After a time the solution loses all semblance of its original balance, and to start over again with a new solution is the wisest course to follow if one would be on the safe side.

Alcohol, Glycerine and Water

Since either one of the ingredients added to water will lower the freezing point, it is a fair inference that they combined would do the same thing, each in its proportion to the water present—allowing that there is no chemical combinations—they being merely intimate mechanical mixtures. Assuming that the wood alcohol is to be preferred on some counts as less liable to choke up the constricted passageways or attack the hose connections, and that outside of these evils, which are characteristic of a glycerine and water solution, it is a most desirable and substantial mixture; then it is well to consider the advisability of reducing the quantity of glycerine and substituting alcohol instead. By the use of both wood alcohol and glycerine, the total proportion of water can be increased, and this is a step in the right direction on two counts, that is, cost and stability. The following combinations of half alcohol, half glycerine and water may be satisfactorily used:

Percentage in water	Freezing point
10	25
20	15
25	8
30	— 5
35	—15

Common Salt Solution

A saturated solution of common salt, sodium chloride, also can be used. It remains fluid down to 0 degrees Fahrenheit. An incrustation, however, occurs as the water evaporates, and it is claimed electrolytic action would follow its use. Common salt is cheap; that is one thing in its favor; but radiators are costly, delicate and composite in construction—that is to say, there are a plurality of metals in the make-up of radiators, hence electrolytic action would follow, due to the difference of potential natural to different metals immersed in a saline bath. In the long run it is experience that counts, and it is still a question as to the extent to which saline solutions can be used with safety. No motorist cares to do the experimenting if his motor is to be the dog on which to try it; and while it is said that a saturated salt solution does not affect the metal of the system, it also is claimed that, aside from possible electrolytic action, cast iron undergoes a change when immersed in salt water and that castings seem to rot.

SOME LUBRICANTS USED FOR MOTOR CARS

By H. W. Slauson
PART II

IT IS perfectly true that, when subjected to a sufficient degree of heat, inflammable vapors will be given off from any oil. These vapors may be given off to a small extent even at lower temperatures, for all oil is volatile to a certain degree, and it is the gradual thickening of the lubricant caused by this evaporation of its lighter portions that causes gumming. Notwithstanding the slight tendency toward evaporation on the part of all oils, the temperature at which an inflammable vapor will be given off is the flash point of the oil. According to the above theory, then, the temperature of the crankcase of the motor must reach over 450 degrees every time an explosion of the oil occurs in this part of the motor. But unless there is a leakage of the exhaust gases past the piston rings, the temperature of the crankcase is always kept far below that point, and as the flash point of the average oil is between 400 and 450 degrees Fahrenheit, the absurdity of the statement that a crankcase explosion is due to the cylinder oil will be evident—especially when a reliable oil is employed. In the four-cycle motor, crankcase compression cannot be said to cause the explosion, even though some gasoline may have been mingled with the lubricant in the base—for engines of this type are, as a rule, provided with outlets from the base which serve to keep the interior at atmospheric pressure when the piston is at either extreme of its stroke. Many two-cycle motors use crankcase compression, but this rarely exceeds 15 pounds per square inch above atmosphere, a pressure at normal temperatures absolutely incapable of causing ignition of even the most volatile lubricant.

Interesting Laboratory Tests

Although laboratory tests are not considered by some manufacturers to be a good criterion of the performance of the lubricant under actual working conditions in the car, the results of such a test performed by Professor Gill, of the Massachusetts Institute of Technology for the Massachusetts Automobile Club are interesting as showing some of the properties possessed by a half-dozen of the well-known oils on the market. All of the oils tested were found to contain at least a little tarry matter or free carbon, others contained some, and one medium-weight lubricant contained much. The thinnest oil tested had a viscosity of 73 at a temperature of 100 degrees Fahrenheit, and the heaviest oil showed 191 under the same conditions. The flash point varied from 392 degrees for the oil having a viscosity of 191, to 448 degrees for the lubricant of 95 viscosity. The fire points of these same oils were 458 and 520 degrees, respectively. The chill point of none of these was obtained.

One of the oils tested by Professor Gill was Eagleine, made by the Eagle Oil and Supply Co. This contained a little free carbon, had a flash point of 420 degrees, a fire point of 482 degrees, and a viscosity of 73. Professor Gill recommended the oil "possessing the least tarry matter and having the lowest viscosity—provided it is heavy enough to do the work." According to the manufacturers of this product, Eagleine is "a strictly mineral product, pale yellow in color, and is a combination of high-grade products of the oil distiller's art. All the ingredients are filtered through animal charcoal, thus removing the major portions of the free carbon." A point worthy of notice in connection with this test is the fact that one of the three oils mentioned as containing but little free carbon is not a lubricant in which filtration plays an important part in its manufacture. The filtered oils tested, however, also contained but little tarry matter.

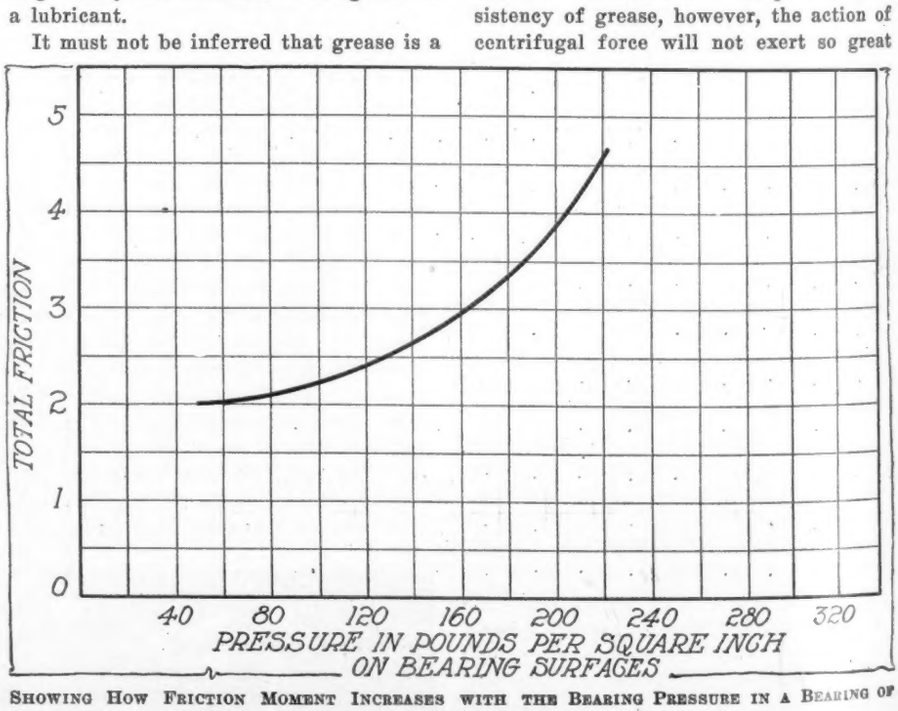
Oiling Other Parts Than Motor

The preceding paragraphs of this article have dealt almost entirely with motor lubrication, but although this is probably the most important phase of the subject, all other moving parts of the motor and car are deserving of careful attention. For use in the transmission and differential cases and other parts where heavy pressures will be found, much thicker lubricants must be employed than in the motor. Some oils for this purpose are made of almost the consistency of molasses, but where such high viscosity is required, it is generally recommended to use grease as a lubricant.

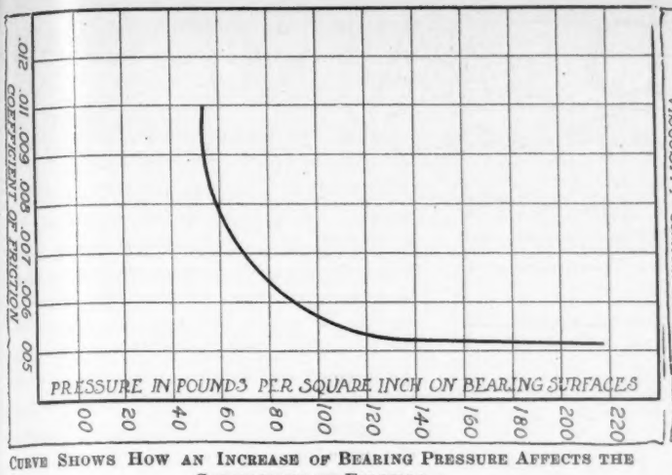
It must not be inferred that grease is a heavy oil, for such is by no means the case and the composition of the two is entirely different. The physical difference between the two lies in the fact that at normal temperatures the grease does not possess sufficient fluidity to run or pour and consequently, if measured at all, its viscosity would be infinity. Of course if heat is applied the grease may be brought to a fluid state, but under ordinary conditions it is not a liquid. The fact that grease is not a liquid is one of the strong points in favor of its use on the wheels and other parts where a thin oil would be liable to leak out. The hub caps may be removed, the ends of the axle and bearings packed with grease, and sufficient lubrication may be assured to last for several months of ordinary running. On the other hand, it is evident that it would be exceedingly difficult to keep a sufficient quantity of oil in place, no matter how tight the bearings may be packed. It is in the transmission and differential cases that the field for discussion as to the relative merits of heavy oils and greases arises, and each lubricant has its adherents. All well-constructed cars of today are made with gaskets at all joints of the transmission and rear axle cases, and these generally so effectively prevent the leakage of oil that this phase can hardly be considered as a factor in the discussion.

Grease As Gear Lubricant

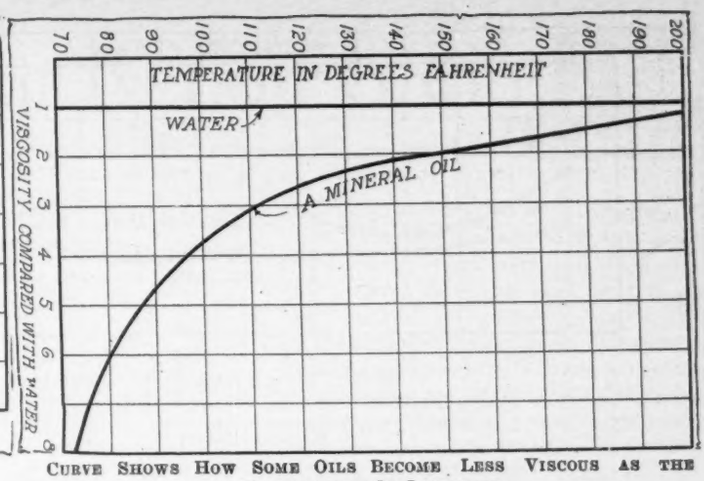
Probably the most convincing argument in favor of the use of grease as a lubricant for gears is the fact that the rapid rotation of the latter would have a tendency to throw off by means of centrifugal force most of any fluid through which the bottom parts of the gears may revolve. On account of the peculiar consistency of grease, however, the action of centrifugal force will not exert so great



SHOWING HOW FRICTION MOMENT INCREASES WITH THE BEARING PRESSURE IN A BEARING OF ANY PLAIN TYPE



CURVE SHOWS HOW AN INCREASE OF BEARING PRESSURE AFFECTS THE COEFFICIENT OF FRICTION



CURVE SHOWS HOW SOME OILS BECOME LESS VISCOUS AS THE TEMPERATURE IS INCREASED

an effect on it, and consequently slightly better lubricating properties could be obtained from the same or a smaller amount of it than would be the the case with a liquid lubricant. Of course this phase of the subject does not enter into the discussion if the gearbox is nearly filled with the lubricant and the gears are running entirely immersed.

The exponents of oil lubrication for all purposes maintain that, owing to the consistency of grease, the gears merely cut a place in it in which to run and then revolve without ever coming in contact with the remainder of the grease in the box. Adam Cook's Sons, the manufacturers of Albany grease, say, however, that the very slight amount of heat set up in the gearbox by the first few revolutions of the wheels and shafts is sufficient to reduce the consistency of their grease to such a point that it will take its place on the gear teeth and bearings and combines, under these conditions, the advantages of both an oil and a grease. This grease is one of the very few animal products placed upon the market for motor car lubrication purposes, and is made from pure tallow. The acid, which is ordinarily present in all animal fats, is entirely removed by a thorough process of boiling. By the same means, the grease is kept from becoming rancid, and in proof of this the manufacturers have on exhibition samples of their product made over 30 years ago in which not the slightest change in odor or color can be detected.

Oxidation May Leave Deposit

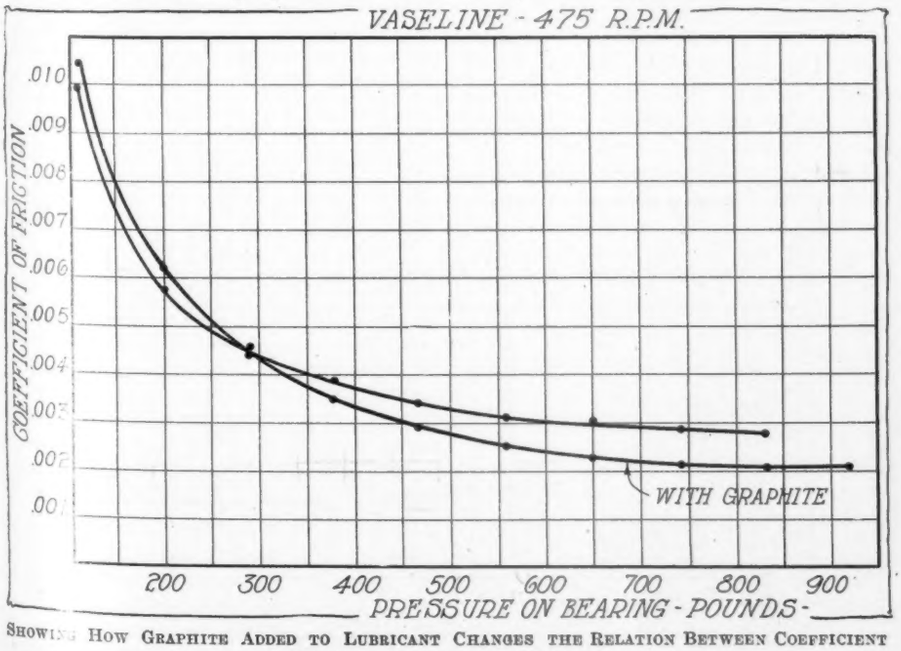
Oxidation, if carried too far, is liable to leave a deposit on the gears in the form of a scale which will greatly increase the coefficient of friction between the two surfaces. This deposit will, in time, become so thick and hard that the gears will be prevented from meshing properly and contact will take place at the ends of the teeth instead of at the center. Running with the gears in this condition will eventually spring the shafts out of line, and the whole result will be disastrous in the extreme. This is an extreme case, however, and it is improbable that any of the reliable greases will carry oxidation to this extent.

Many manufacturers claim that there is no such thing as a bona fide mineral grease —that greasiness can only be obtained by the addition of animal fats in one form or another to the petroleum products. In many of the so-called mineral greases lime is used to cause the product to set at the proper temperature and give the desired consistency. This serves also to give the necessary unctious or greasy properties to the mineral product and practically saponifies the compound. The soapy effect produced by the use of a little water with some of the greases treated in this manner is an indication of the use of lime in their manufacture.

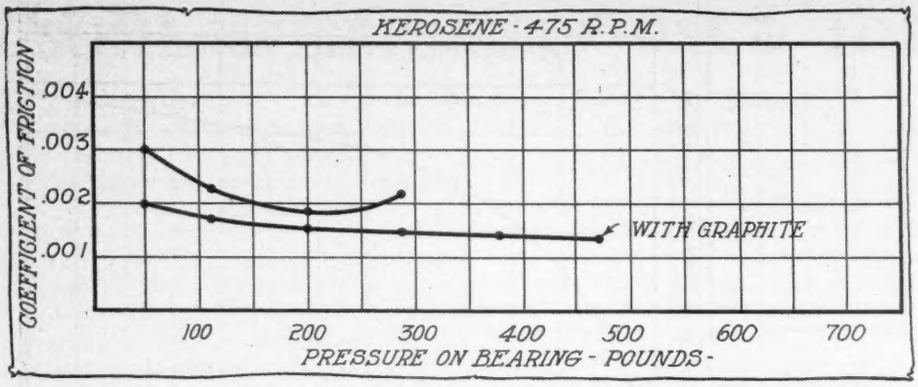
Some Combination of Petroleum Product

Many lubricating greases are a combination of a petroleum product such as jelly or vaseline and an animal grease. In these the former component is used as a body to which the grease is added to give the desired slippery effect. It is not generally known among motor car owners, however, that a pure petroleum jelly uncombined with an animal grease makes a very satisfactory gearcase lubricant. Such is the statement of W. A. Smith, of the Valvoline Oil Co.

"Although, owing to popular demand, our company produces and markets great quantities of the mineral and animal grease compound," said Mr. Smith, "it is my personal opinion that a pure petroleum jelly alone makes the best heavy lubricant known for the gears of a car. The public, however, demands a grease, and as this must contain some animal fat in order to be a grease in the strictest sense of the word, we prepare the compound in the manner desired by the users. But those who have used petroleum jelly alone have obtained very satisfactory results, and the minutest examination of a set of gears which had been run for thousands of miles in such a lubricant revealed no perceptible wear of any kind—and even the original tool marks were still visible. Such a jelly can contain no acids and consequently no oxidation nor change of color can take place. We also find this clear petroleum product to be particularly well adapted for use with all sizes of ball bearings."



SHOWING HOW GRAPHITE ADDED TO LUBRICANT CHANGES THE RELATION BETWEEN COEFFICIENT OF FRICTION AND BEARING PRESSURE



CURVE SHOWS HOW GRAPHITE WHEN MIXED WITH KEROSENE CHANGES THE RELATION OF FRICTION AND BEARING PRESSURE

It is rather difficult to determine the classification under which the non-fluid oils should be placed. A lubricant of this class might be considered as an oil possessing the infinitely high viscous properties of a grease in that it will neither spread, run nor drip; or it may be considered as a grease that has not set or hardened to the usual point—or a grease which has been heated to the temperature at which it is almost ready to flow. The difference between a non-fluid oil and a cold grease, however, will be noticed if one tries to cut a piece of the lubricant out of the can or jar with a knife. A cold grease can be cut almost the same as butter, but the non-fluid oil will stick to the knife and to itself in such a manner that a piece of definite shape cannot be removed. Perhaps this explains the difference more clearly than in any other way: a piece or chunk of the lubricant can be removed from a mass of grease, whereas a non-fluid oil must be scooped or dipped out.

Keystone grease, made by the Keystone Lubricating Co., is a non-fluid oil of the kind described above. When this is placed in the transmission case, for instance, its manufacturers claim that its soft and near-fluid state renders it at all times ready to cover all parts of the moving surfaces passing through it and that a thorough lubrication is assured from the outset. This oil, it is claimed, will adhere to the gears even while they are revolving under high speed, and as their rotation serves to keep the lubricant in the bottom of the case constantly in motion, all molecules are caused to come in contact with the moving parts, and the lubricating value of practically every drop of oil is obtained. It is claimed that the consistency of this lubricant is not changed by ordinary extremes of temperature, and that its soft and yet non-fluid properties will be maintained between 0 and 150 degrees Fahrenheit.

A lubricant known as the Non-Fluid oil is made by the New York and New Jersey Lubricants Co., and possesses properties similar to the product described in the preceding paragraph. Both of these are mineral products resembling in consistency and appearance a petroleum jelly, but detailed information as to the process of manufacture is not to be had from the makers.

Production of Cylinder Oil

Probably all manufacturers of lubricants make petroleum jelly, grease compounds, or pure animal greases for use in the transmission and differential cases of the motor car, but the majority of gas engine oil manufacturers devote particular attention to the production of cylinder oil. Many of these manufacturers advise the use of a grease and a heavy oil in the gear cases of the motor car, and claim that the grease helps to thicken and give body to the oil, and the oil increases the lubricating effect or unctiousness of the grease and serves so to thin it that it will run to all parts of the gears and shafts. When such a combination is desired, it is generally best to use about equal parts of each and to break up the grease with the hand as the oil is added so that the two will unite easily and form one semi-fluid mass. Of course various consistencies of the mixture may be obtained as desired by changing the proportion in which the oil is added, but if the result is rendered too thin, the advantages afforded by the presence of the grease will be eliminated.

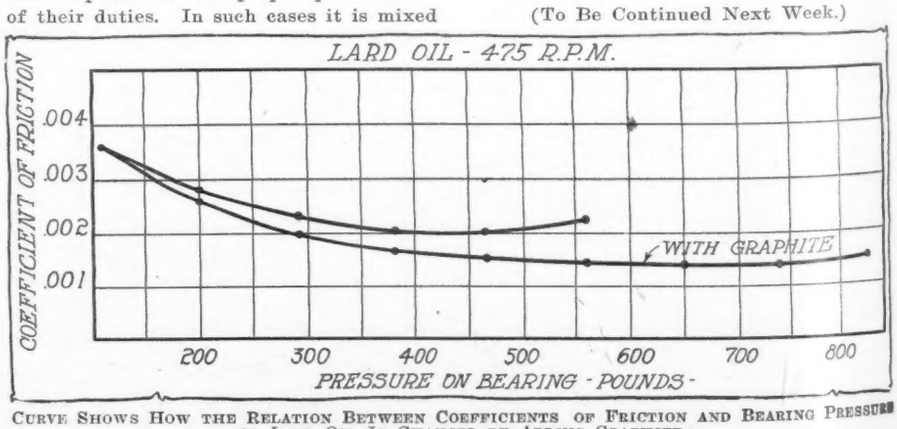
Graphite As a Lubricant

Graphite as a lubricant can be classed neither as an oil nor a grease, and consequently must be placed in a division by itself. Although in some respects graphite alone will serve as a lubricant, in motor car practice it is not so much a competitor with oils and greases as it is an adjunct and help toward the proper performance of their duties. In such cases it is mixed with oils in the proper proportion and the two work together to give what is generally conceded to be a maximum lubricating effect.

Unlike oils and greases of both animal and mineral kinds, graphite is not a hydrocarbon, but is a form of the latter element alone. This form of carbon is mined and is then reduced by a process which separates the graphite from the gangue and impurities in which it was originally embedded. Graphite appears in two forms—the crystaline, flake, and the amorphous. The former, as its name implies, appears in its final commercially-pure state in the form of thin scales which may be ground to almost any degree of fineness. The amorphous graphite, on the other hand, has no regular formation and the particles of which it is composed are granular and dull in appearance. In a series of tests which have been made by several scientists, it has been found that as a lubricant the flake form of graphite is far superior to the amorphous, and that the latter, owing to its structure, will break down under much lighter loads than is the case with the former, which has been found to withstand exceedingly high pressures on the moving surfaces between which it is placed.

A peculiar quality of graphite possessed by no other form of pure carbon is its unctiousness, which reduces the coefficient of friction of the surfaces between which it is applied to a point hardly equaled by a perfect oil. Sperm oil has the greatest friction-reducing qualities of any known lubricant, but it has been found by laboratory tests that a mixture of grease and flake graphite possesses a lower coefficient of friction than this oil. This is probably due to the fact that the particles of the graphite enter all the holes and pores of even microscopic size in the surface of the metal on which it is applied, and a smooth, slippery coating is thus formed. When a grease or oil is applied to this surface, the resulting coefficient of friction is reduced to a minimum, and it is for this reason that graphite gives such splendid results when mixed with whatever other lubricant is to be used and applied to the gears, bearings or cylinders of a motor car.

(To Be Continued Next Week.)



CURVE SHOWS HOW THE RELATION BETWEEN COEFFICIENTS OF FRICTION AND BEARING PRESSURE OF LARD OIL IS CHANGED BY ADDING GRAPHITE

The Motor Car Repair Shop

A VERY simple and handy pair of levers for withdrawing timing gears and other such parts, which have become temporarily fixed on to shafts, has been devised by a contributor of The Commercial Motor. Very often bevel pinions, foot-brake drums, couplings, axle cones and other such parts have to be removed from their seatings, and the space at which they can be got at is quite restricted. It is, in such cases, often necessary to exert great pressure in order to shift the seized part, and in order that this might be done with ease, a pair of levers as shown in Fig. 2 was made. They are, essentially, two bars of spring steel, about 20 inches long and 1⅛ by ¼ inch section, with one end of each bent at right angles to a depth of about 1 inch. In the illustration, Fig. 2, is shown how a timing gear could be removed from the end of a crankshaft. The short bent ends of the levers are placed between the gear-wheel and the engine case, and pressure is then applied in opposite directions on the free ends. If the space available at the back of the part to be loosened be greater than the width of the lever at the bent end, it, of course, may be necessary to insert a piece of packing of suitable thickness. In order to avoid the possibility of the lever's crushing the aluminum casing or whatever it is from which the purchase is obtained, it is advisable to insert a piece of strong sheet steel of horseshoe shape so that it will fit well over the shaft and will remain in position while the ends of the lever are pressed against it.

FEED-PIPE CONNECTIONS

It is often necessary in a repair shop to remove the gasoline feed pipe from a car in order that it may be cleaned, or to disconnect it from the carbureter only, so the carbureter may be cleaned, repaired or replaced with one of another type. It also is often noticed that after a job of this kind has been performed that a slow leak will develop around the joint, or that the joint will be difficult to loosen up again, or both. These troubles are due to the fact that the joint was not properly made. To connect up a feed-pipe to a carbureter or a tank is one of the most simple operations, but unless properly performed many aggravating efforts may be made before the nut of the coupling is even started on the threads of the male portion of the joint. The nut is often tightened up in a cross-threaded condition and even when the nut is successfully started on the threads it must be screwed all the way home with a wrench, when under proper conditions it might be screwed most of the way on with the fingers. The right and wrong ways of connecting up a feed-pipe are shown in

Hints for the Amateur

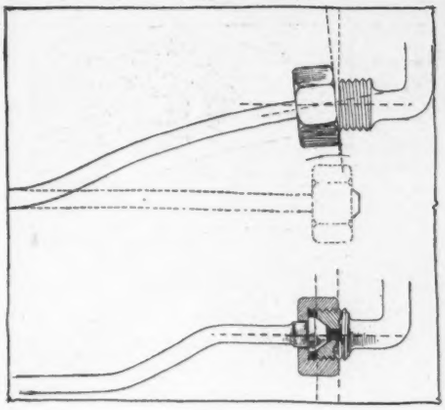


FIG. 1

Fig. 1. The upper illustration shows why an apprentice failed to make a connection between a feed-pipe and a carbureter, but succeeded in destroying the first thread or two of both members of the joint; while the lower figure shows how the foreman of the shop made the connection with comparative ease after having dressed down the damaged threads with file and scraper. The secret is one of the fundamental principles of mechanics, that is, to always secure the proper alignment of component parts before making a connection. If, after having properly lined up the parts and screwed up the nut fairly tight, it should still leak slightly, do not strain the union to the utmost in an endeavor to secure an oil-tight connection, but loosen it up again and apply a litle shellac or common soap, and a good result will be obtained without straining the union.

PROTECTING VARNISH IN SHOP

Some time ago one or two contemporaries commented on the disposition of repairmen to utilize the polished horizontal surfaces of the fenders as convenient tool racks while making sundry repairs on the motor. Suggestions were also made as to how to cover these varnished parts to protect them from being scratched and spotted by the tools and greasy hands laid thereon. This is a pertinent subject, and every shop foreman should see that all brilliantly varnished surfaces of a car are properly protected while the car is in his shop. When extensive operations are to be performed on a motor, the fenders as well as the hood should be removed; for in so doing, not only is the paint of the fenders protected from mutilation, but the motor itself is rendered far more accessible, and the work more readily and conveniently accomplished. Repairmen who, as a general rule, are in favor of removing the fenders when about to work on a motor, often neglect to do so on account of the difficulty of their removal, owing to the accumulation of rust on the bolts and joints and sockets, through which they are connected to the frame of the car. It is therefore advisable for the owner or driver of a car anticipating placing his car in the repair shop for motor repairs, to loosen up the above mentioned connections by applying a little kerosene, now and then, for a couple of days before turning the car over to the repairmen.

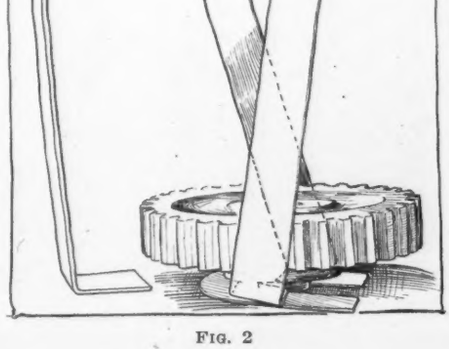


FIG. 2

MOTOR CAR INSPECTION

Some cars are so noisy that the driver never knows that there is anything radically wrong until some characteristic rattle ceases to be, owing to the loose part having severed its connections with the car and dropped to the road, or, until the complaining parts actually break down and interfere with the operation of the car. On the other hand, most cars, and in fact almost every modern car, can for a long time be kept so free from noise that the slightest amount of lost motion may be readily detected. A car should be looked over regularly, and especially after it has seen hard service, in order to insure that all important bolts and nuts are tight, that the steering mechanism is in proper order, that the hub caps on the wheels are on tight, that the spring clip nuts holding the springs to the axles are tight, etc. Other important connections requiring regular inspection are these: Transmision case to frame; engine cylinders to motor base; motor base to frame. Most manufacturers secure their parts in the best possible manner, but even those cars which enjoy the best reputations for standing up to hard service, need inspection, and the owner must attend to it or see that it is attended to properly. The old adage: "For the want of a nail the shoe was lost," etc., certainly applies to motor cars.

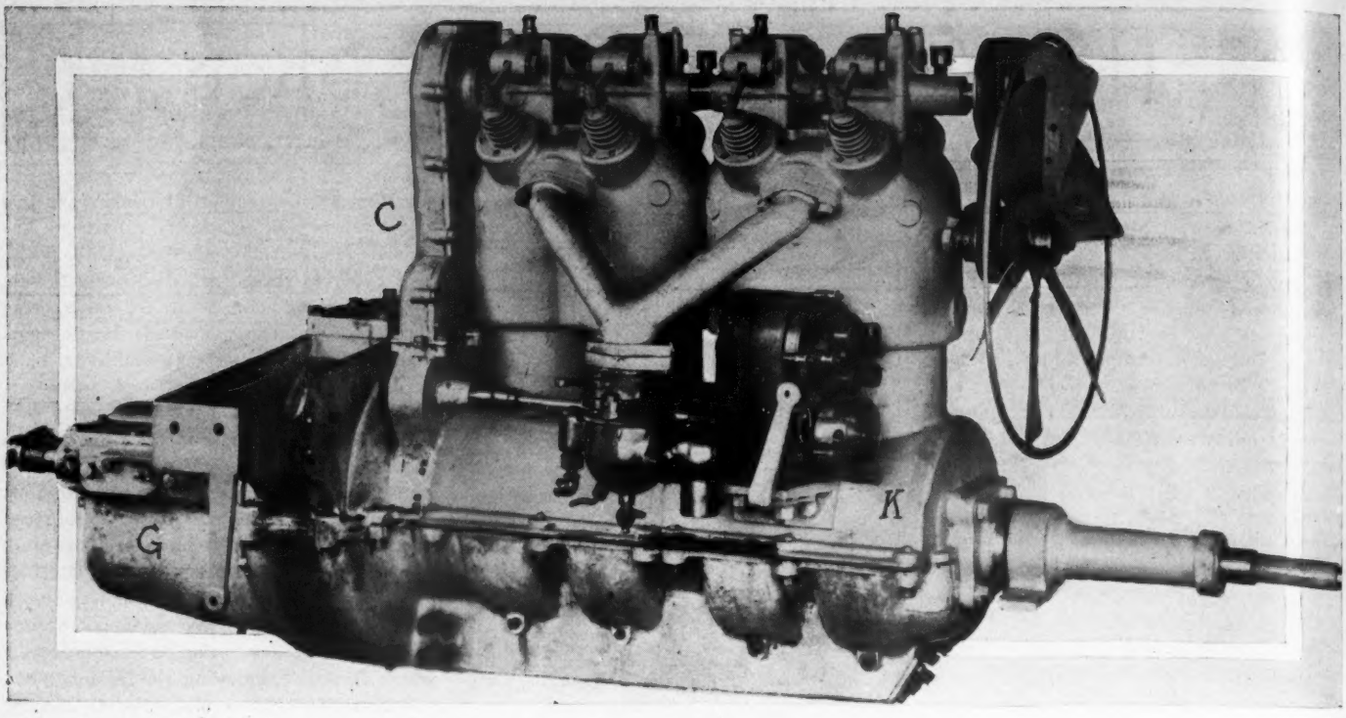


FIG. 1—JACKSON MODEL THIRTY WITH CHAIN DRIVE TO CAMSHAFT

Three 1910 Jackson Motor Cars

IT IS the present plan of the Jackson Automobile Co., Jackson, Mich., to increase its output of cars from 3,500 of present season to 5,500 or more for the 1910 season. The company already has its three next year's models on the market, all of which are four-cylinder types, the concern not including in its next year's menu two-cylinder models such as it listed this year. Another noticeable change is that all three models for next year use motors with overhead camshafts having intake and exhaust valves mounted at 45 degrees in the cylinder heads. The three models, starting from the smallest up, are designated models 30, 40 and 50; model thirty, with cylinders 4 inches square, with 105-inch wheelbase; model forty with them 4½ inches square, with 110-inch wheelbase, and model fifty with them 4¾ inches square, with 122-inch wheelbase. The thirty is a small car and is an entirely new model with this concern. It will thus be noted that the company retains its confidence in square cylinders, these being cylinders with the bore the same length as the stroke. Next year is the first year in which all models use the overhead camshaft. Although the three engine types are alike in this regard, they nevertheless differ in some respects. Fig. 1 illustrates the unit power plant of model thirty with its cylinders cast in pairs and the gearbox G a unit with the lower half of the crankcase. The characteristic feature of this motor is that the overhead camshaft is driven by a chain within the casing C, whereas in models forty and fifty, Figs. 2 and 4, the camshaft is driven by a vertical shaft S at the front of the motor, this shaft taking its drive from the crankshaft through bevel gears and transmitting through similar gears to the camshaft. Fig. 4 shows the fifty motor with its separately cast cylinders. The 1910 models are the first ones this company has turned out with twin cylinder castings, but it will be noted that these castings bear striking resemblance to the individual ones. A unique feature in conjunction with the thirty motor is that the upper half of the crankcase K is an integral unit with the cylinder castings, which is particularly novel in view of the fact that the clinders are cast in pairs. The policy of forming the upper half of the crankcase integral with the cylinders is becoming common, however, in cars selling from $800 to $1,300.

The valve action has always been a talking point in Jackson cars, and with the location of intake and exhausts mounted at approximately 45 degrees at opposite sides the attaining of a hemispherical combustion chamber is comparatively easy. The higher efficiency of this type of combustion chamber has been exploited on many occasions, Dugald Clark, the eminent English authority on gasoline motors, being one of its leading exponents. Coupled with the hemispherical combustion chamber is the use of large-diameter valves, those in the forty being 2 inches with a ⅜-inch lift, and those in the thirty 1⅞-inch with the same lift. Fig. 3 shows the operation of these valves, as well as the design of the overhead camshaft. The camshaft C is supported at eight points,

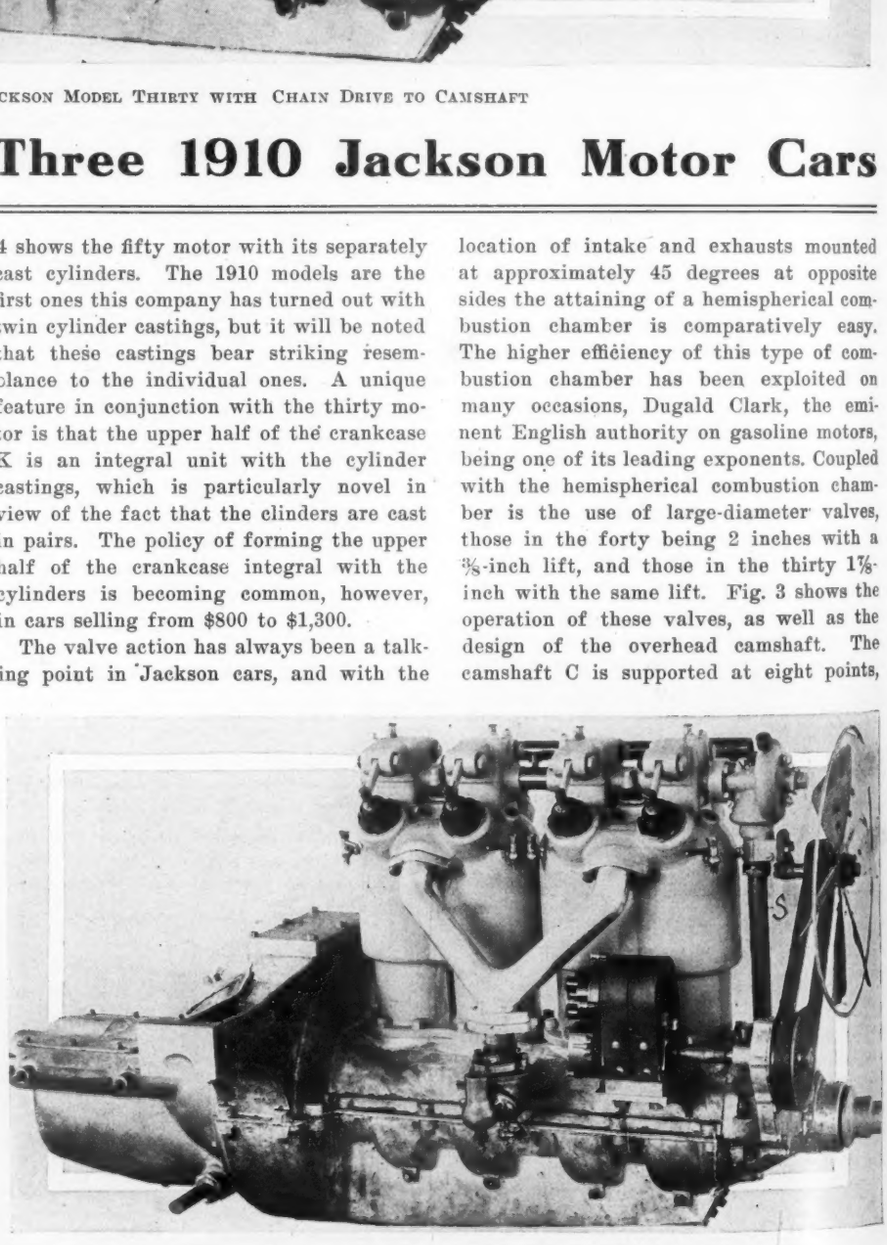


FIG. 2—JACKSON MODEL FORTY MOTOR

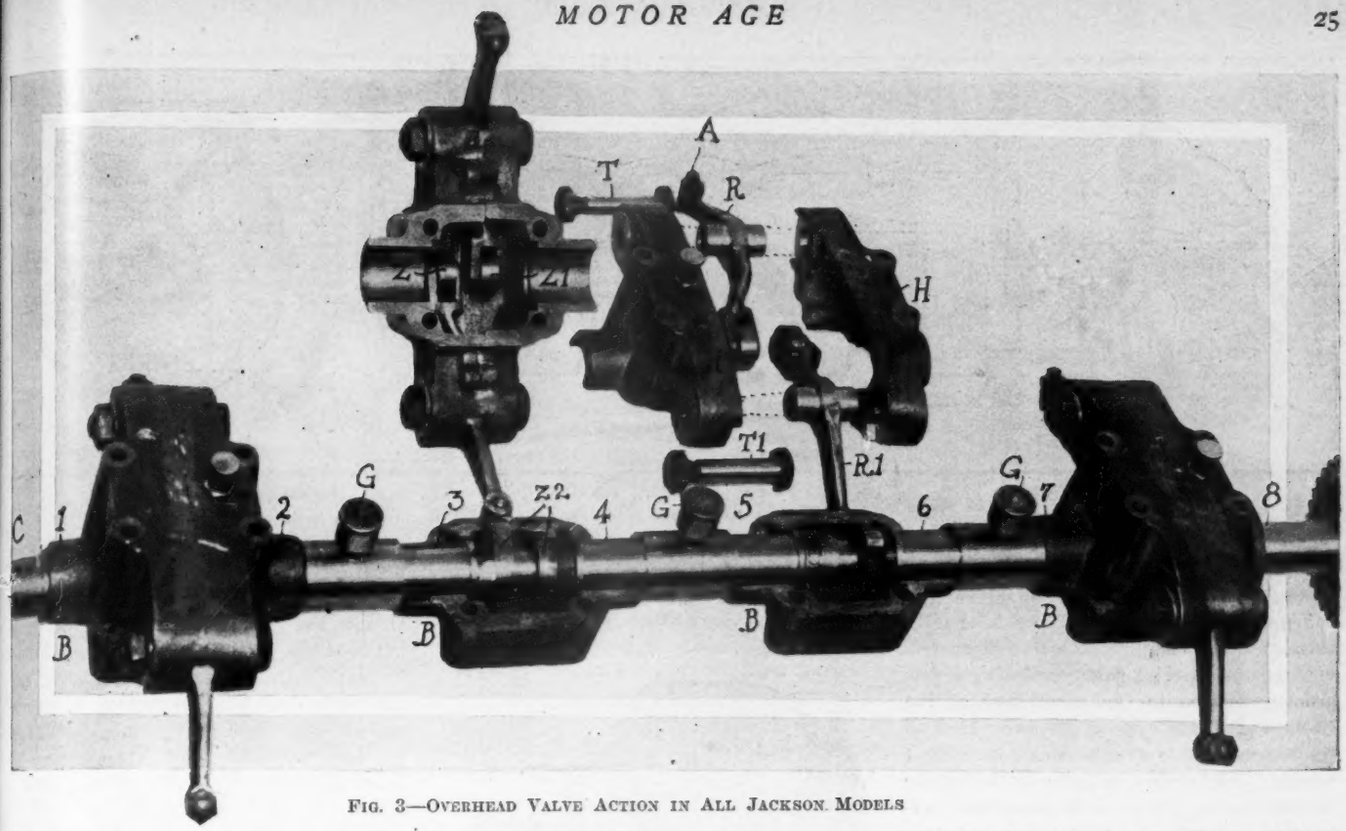


FIG. 3—OVERHEAD VALVE ACTION IN ALL JACKSON MODELS

All Cars Are Four-Cylinder Types

designated respectively 1, 2, 3, 4, 5, 6, 7 and 8, these supports being on four brackets B resting on the cylinder heads. Each pair of rocker arms for the intake and exhaust valve of the cylinder is enclosed by a split housing H, which forms bearings for the bolts T and T1 that support the rocker arms R and R1, R for the exhaust valve and R1 for the intake valve. These rocker arms are yoked at their inner ends and take rollers bearing on the cams and at their outer ends carry adjusting screws A with lock nut by which any lost motion between the end of the rocker arm and the top of the valve stem can be taken up. Z and Z1 show the assembled position of the two rollers within the housing, and Z2 the cams side by side on the camshaft. Having a bearing at each side of each pair of cams eliminates any chance of deformation of the shaft and accuracy of timing is insured. Using a complete housing H for each pair of cams and rocker arms allows of a splash system into which the cams dip each revolution. This oiling system also cares for the rollers on the rocker arms. Three compression grease cups G are furnished to lubricate the camshaft bearings.

The Jackson company was one of the earlier exponents of thermo-syphon cooling in the days when the two-cylinder motor was in the ascendency in the medium-priced field, and with the adoption of four-cylinder types the company has continued the thermo-syphon principle throughout, Fig. 4 showing where the water enters the jackets through the piping E at the lowest point of the exhaust side and leaves by an exit pipe E1 in the cylinder head. A fan is used in conjunction with all models, it being of the die-formed type with six blades set at an angle to give maximum efficiency. The fan revolves on ball bearings and is mounted on an adjustable bracket on a bevel gear housing of the camshaft in the forty and fifty types, but on the front cylinder in the thirty. It is driven by a flat belt from the magneto shaft in the two larger models and from the camshaft in the thirty.

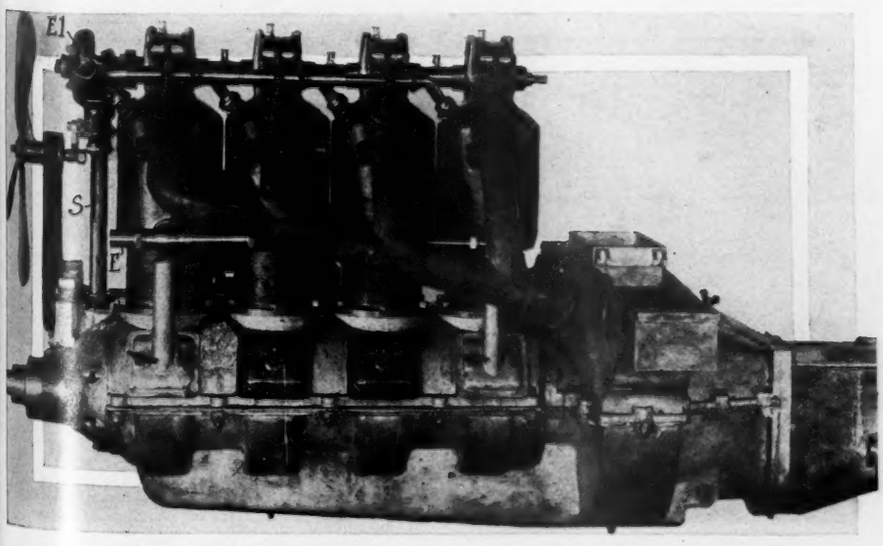


FIG. 4—JACKSON MODEL FIFTY MOTOR WITH INDIVIDUAL CYLINDERS

The lubricating system of the Jackson, employed on all of these models, is simplicity and novelty combined, in that there is no additional lubricator parts or oil pipes used in the complete system. Fig. 5 shows the general scheme of it, in which the flywheel F is the motive force for circulating the oil. This flywheel is inclosed in a chamber C which is made an oil reservoir. As the flywheel revolves it picks up the oil, which is caught by a shelf S in the top of the case. From this shelf the oil drips into a receptacle R on the side of the case and flows into a pocket P for supplying the rear crankshaft bearing, marked 5. The overflow from this bearing falls into the receptacle K4 beneath the fourth cylinder. The rotation of the connecting rod splashes the oil into a groove G on the side of the crankcase, which conducts the flow into the compartment K3 for the third cylinder. From this compartment it is similarly conducted by grooves G into compartments K2 and K1. Above each crankshaft bearing is a pocket which is filled with the splash. When the

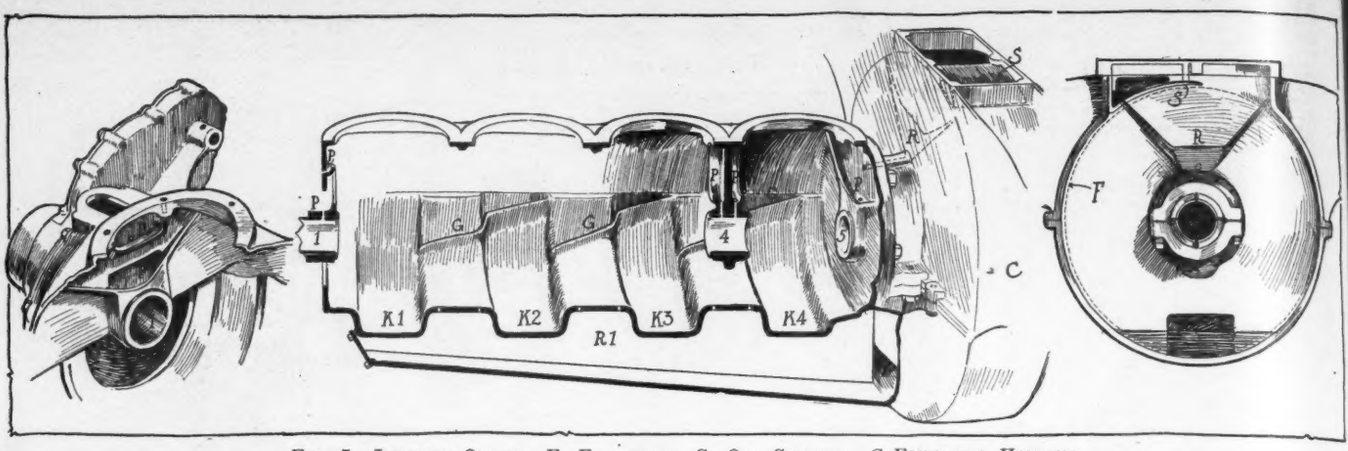


FIG. 5—JACKSON OILING—F, FLYWHEEL—G, OIL GROOVES—C FLYWHEEL HOUSING

oil reaches a predetermined height in the compartments K1, K2, K3 and K4, it overflows into the reservoir R and is returned to the flywheel housing C. There is thus in this system a complete circulation system without any special parts excepting a few grooves formed in the inner face of the crankcase. This system has been used in its motors of this type during the present season. The system is claimed to operate efficiently until the oil is practically exhausted from the flywheel compartment C, and it is further stated that the lubrication of the entire motor is as efficient when the total oil supply is not more than ½ gallon as it is when 3 or 4 gallons are in the motor.

As previously stated, in all three Jackson models the transmission and clutch form a unit with the motor, and in the two larger types multiple-disk clutches are employed, whereas a cone type is used in the thirty. Fig. 6 shows this clutch with one set of disks provided with circumferential wings A which secure these disks to the flywheel, the alternate disks attaching at their hub to the transmission driver. The disks are separated by springs placed for the purpose, one of which is seen at B. The stress of the engaging spring is transmitted to the disks through a toggle system which may be adjusted by backing off the stud C and winding up the spider D. In this way lost motion, due to wear of the disks, is taken up, and the clutch may be maintained in good working order.

The transmission of all three models is a three-speed selective type with main and countershafts mounted in the same vertical plane and carried on ball bearings. Gears and shafts are made of heat treated steel. The gear teeth are wide and cut on Fellow's shapers to insure accuracy and the ends of the teeth are chamfered on an automatic machine so that engagement may take place without clashing. Shaft drive is employed in all three models. Model forty,however, using a propellorshaft with two universals and a torsion bar paralleling it, whereas on models thirty and forty a single universal joint is used and instead of a separate torsion bar a torsion tube is used.

The running gears of all three models show not a few interesting Jackson characteristics. Foremost in this category comes the employment of elliptic springs in front and rear, the company having

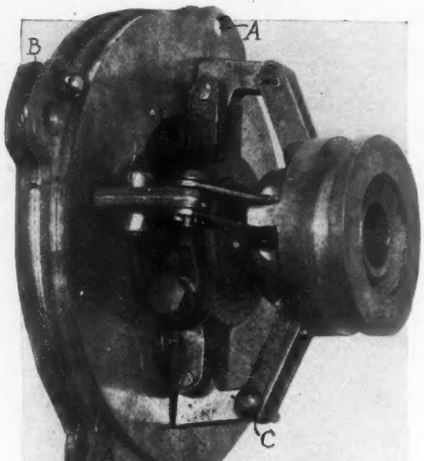


FIG. 6—JACKSON CLUTCH

used this type of spring exclusively during the present season. A change in all models is the dropping of the side members of the frame 2 inches in advance of the front axle. As heretofore, these members are inswept at the dash. The forward axle is an I-beam forging, but a change has been made in that the tie-rod between the steering arms is now located in rear of the axle and the steering arms are above the axle instead of beneath it, so that this important member of the car is well removed from the ground. A worm-and-gear type of steering gear is employed, which is designed so that three teeth of the gear press against the worm. Both worm and gear are made glass hard and the worm is supported on an adjustable ball thrust bearing; the gear works in an eccentric bushing affording means of adjustment. Using a gear instead of a sector has an advantage in that should a portion of the gear wear out it is but necessary to remove the steering arm, rotate the gear to a new position, and adjust the eccentric bushing to compensate for any wear of the worm.

The ignition system is a Splitdorf magneto as well as a coil and battery system, giving a dual equipment. The Schebler carbureter is regularly fitted on all models. The equipment of the model fifty includes a windshield, Prest-O-Lite tank, and the usual lamps.

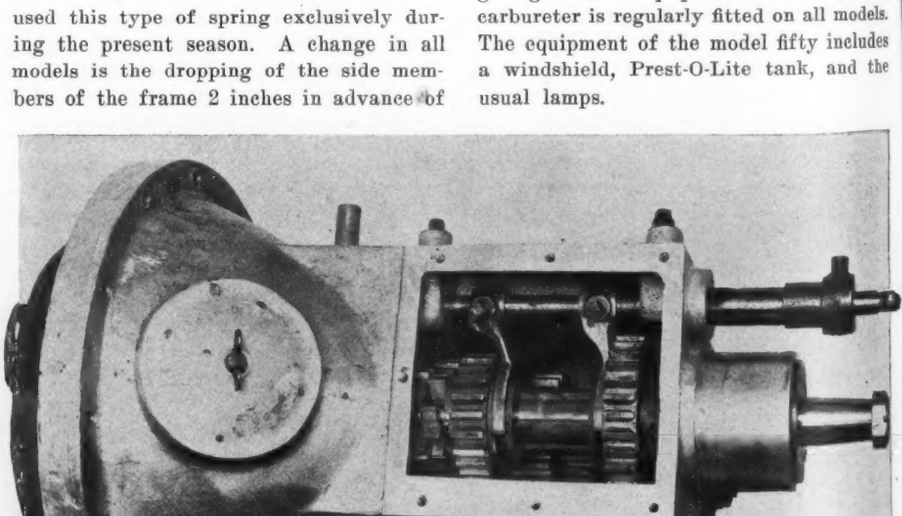


FIG. 7—SELECTIVE GEARSET BOLTED TO END OF CRANKCASE

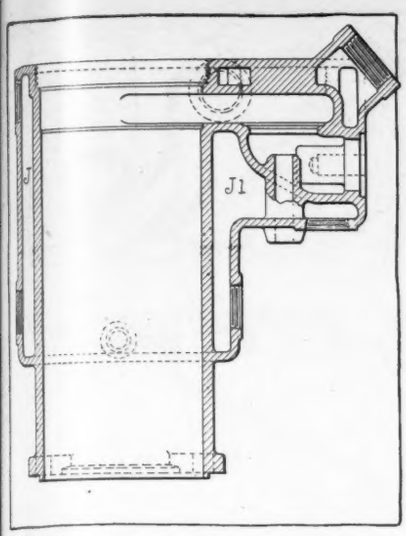


FIG. 1—SECTION BRUSH CYLINDER

A Study of the Brush Runabout Chassis

FEW American cars can boast of as much originality as the Brush runabout. Not a few makers have launched machines that glittered with novelty, but at the end of the first year 50 per cent of these novelties had been discarded for conventional constructions and before the start of the succeeding season the car had become but one of the many. With the Brush the majority of the originalities brought out on the initial machine still continue and for next year the little car will be a duplicate of the present season excepting for adding 3 horsepower obtained by leaving the cylinder bore at 4½ inches, but increasing the piston stroke to 5 inches. Few new cars have entered on their third season carrying so many of their novelty birth marks, of course it must not be forgotten that the pump carbureter scheme has been dropped; but the single-cylinder vertical motor with its balanced crankshaft, the wood axles, the spiral springs working in conjunction with shock absorbers, the wood frame, the side chain-drive, the novel type of planetary gearset and the characteristic type of ball bearings remain a tribute to the inventive genius of the man who designed and brought to completion the initial chassis.

The spring suspension is at variance with common practice, in that the chassis frame rests on four helical springs placed just over the axles, at the four points of suspension, and in order to induce a slow rate of vertical bounce, following road inequalities, the distance rods are terminated at the chassis frame for the front and rear axle at both sides in friction disk members, so contrived that the friction set up due to vertical motion of the axles will be enough to assure that the travel of the body, in the vertical direction will be gradually snubbed, and the rate of change of motion will be that described as agreeable riding qualities.

Some earlier attempts to use helical springs for chassis suspensions, failed to come up to the expectations of their designers, primarily because the snubbing action of the friction members was not taken advantage of, and the axles were very heavy, considering the things to be accomplished. The brush plan does not end with placing friction members to limit vertical bounce, for, as a little further investigation will show, the axles are made of wood in order that they will not be heavy, although it is recognized that they must be strong. At first thought, it might be considered that axles of wood, in a motor car, is an innovation not to be taken seriously. Let us have another look; these axles weigh but a few pounds; regular live rear axles weigh nearly 200 pounds; the difference is the story of energy of impact, and the influences of acceleration. Were the axles heavy, as they would have to be were they made of metal in the usual way, there is small chance that the friction members on the ends of the distance rods would be capable of snubbing the motion of the rapidly bouncing axle at high rates of road speed and with rough going.

By making the axles so that they weigh but little, the feather-weight impact component is not enough to overcome the damping ability of the shock absorbers, and the body rides on an even platform even when the speed of the car is quite high, and when road inequalities are pronounced.

There is one point in favor of helical springs aside from the fact that they are practically unbreakable, and that is, they are capable of recovering at a more than usual rate, when a wheel drops into a rut, and the general performance is very satisfactory, simply because the weight of axle is not enough to disturb the otherwise good relation. As to the strength of wooden axles, it is not necessary to go into detail; they were used in every wagon in the land before steel came into vogue, and the history of wagons does not disclose that they failed in any particular. Four thousand Brush cars adds to this favorable historical fact, and this phase of the discussion may therefore be dismissed as being too trivial to warrant the taking of time and space.

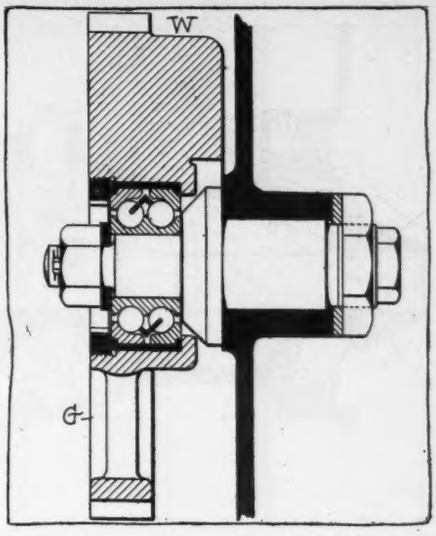


FIG. 2—BRUSH BALANCING GEAR

The single-cylinder motor looks like a page from an European designer's book in that Europe is the breeding ground of single-cylinder types and while America was perfecting the two-cylinder opposed motor and later the four-cylinder type Europe was increasing in the number of single-cylinder types, all of them like the Brush mounted vertically under the hood. Fig. 1 shows a vertical section of the cylinder, which is of the L type with both valves in an offset chamber. The cylinder head, not shown, screws into place against a bevel seat, is rendered tight by the pressure of the head against the cover seat and is readily removed if it is necessary to remove carbon from the combustion chamber. The waterjacketing spaces J surround the cylinder wall right to the top and the spaces J1 around the valves are particularly capacious. The crankshaft, of forty-point carbon steel, is uniquely balanced by a secondary shaft within the crankcase and which is parallel to and driven from the crankshaft by gears. In accomplishing this a balanced gear G Fig. 2 meshes with a gear of the same diameter on the crankshaft and in a plane parallel to

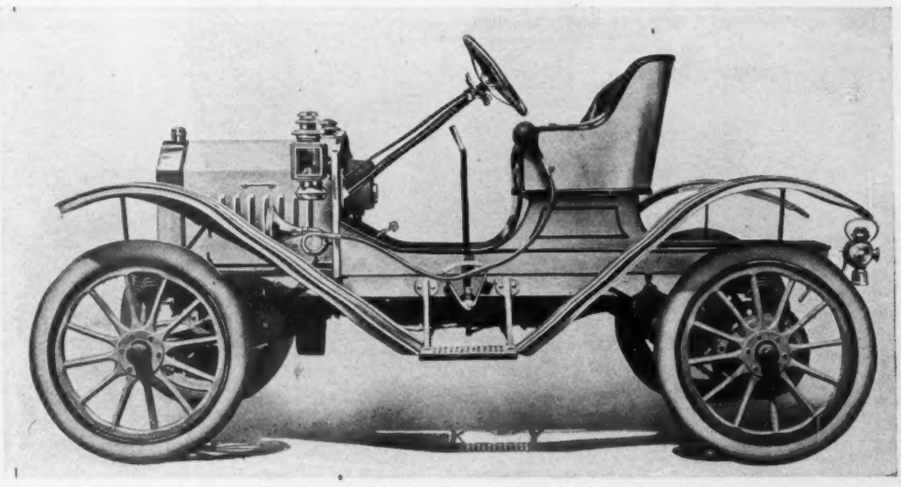


FIG. 3—THE 1910 BRUSH RUNABOUT

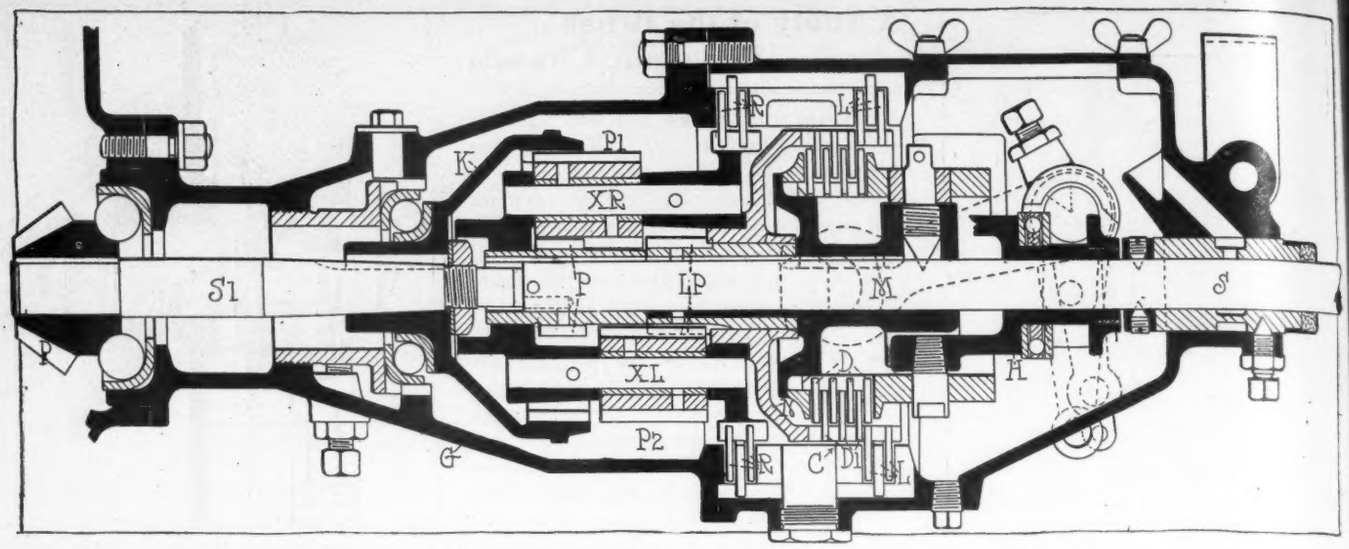


FIG. 1—PLANETARY GEARSET USED BY BRUSH RUNABOUT CO., DETROIT, MICH.

the balance weight on the crankshaft, and since the crankshaft balances takes care of all unequal rotary moments plus one-half of the unbalanced secondary moments, it remains for the auxiliary balance—the balanced gear—to cope with the remaining unbalanced secondary moments. The secondary balance W rotates on an axis above the axis of the crankshaft, a distance sufficient to compensate for angularity of the connecting rod, and although it is not claimed that this secondary balance is capable of perfection in the sense that the ills of all secondary moments will be dispelled, even so it is the fond claim of the makers that a four-cylinder smoothness accompanies single-cylinder simplicity and the performance of the motor seems to be the proof of the pudding. The bore of the cylinder being 4½ inches, and accompanied by a longer stroke than formerly, 5 inches for 1910, the power is increased over what might have been the normal expectation, since the balance is sufficiently corrected to allow of running the motor at the higher speeds for which four-cylinder motors are adapted.

This auxiliary balance is a new idea in American motor practice and in view of the revival of the single-cylinder motor, due to its simplicity and economy, it is reasonable to expect that the auxiliary balancing idea will have a large influence on the future of this situation. It was expected that the balance gear would introduce noise to some extent, which was the theoretical objection to its use, but the quality of work done in the Brush shop seems to be proof against this tendency.

The transmission of the planetary type giving two forward speeds gives direct drive on high speed by locking the gears with a clutch, a type of multiple-disk clutch C, Fig. 4, being used. In this plan section of the gearset the shaft S connects with the motor and the pinion P transmits to the differential on the jackshaft, from which final transmission is by short side chains. This planetary set differs from many of this type in that it is completely housed in a case G and so may be packed with grease. It differs still further from the conventional planetary set in that friction bands are not used to hold drums from revolving to secure low speed and reverse but rather multiple-disk clutches are utilized for obtaining these speeds. The high speed multiple-disk clutch C consists of alternate sets of disks D and D1 which rest between vise-like jaws, one of which is formed out of the spider, and the other is in concentric relation, sufficiently spaced in the axle plane to afford room for the disks plus clearance when the clutch is not engaged.

For direct drive power must be transmitted from the shaft S to shaft S1 carrying the pinion P so that both will rotate at the same speed. On the end of the shaft S is keyed the spur gear P constantly in mesh with a set of three planetary pinions P1 and these planetary spur gears P1 are in turn constantly in mesh with an internal gear on the spider K, which spider is keyed to the shaft S1. To obtain direct drive the carrier H engaging the alternate sets of disks D and D1 in the clutch locks the disk carrier M with the spider N, which carries the other set of disks D1. In this way both shafts XR and XL are locked to rotate in unison with the shaft S, and they carry the spider K around with them. To get reverse and low speed ahead two other three-disk clutches, R and L, are required, and the operation of which is simple.

For reverse, the clutches R lock the three shafts XR, only one of which appears, as these shafts are spaced at 120 degrees from one another around the mainshaft S. The three pinions P1 then rotate on their shafts XR, transmitting to the spider K which is thus driven in an opposite direction to the shaft S. For low speed ahead the clutch L is used, which

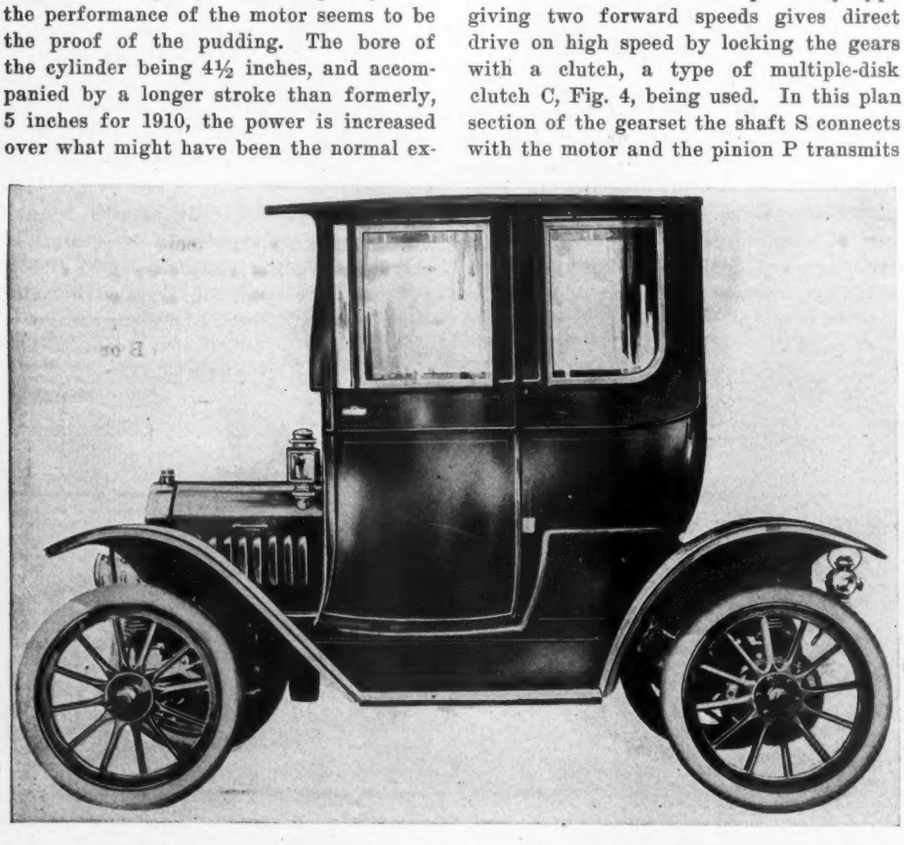


FIG. 5—BRUSH RUNABOUT FITTED WITH COUPE BODY

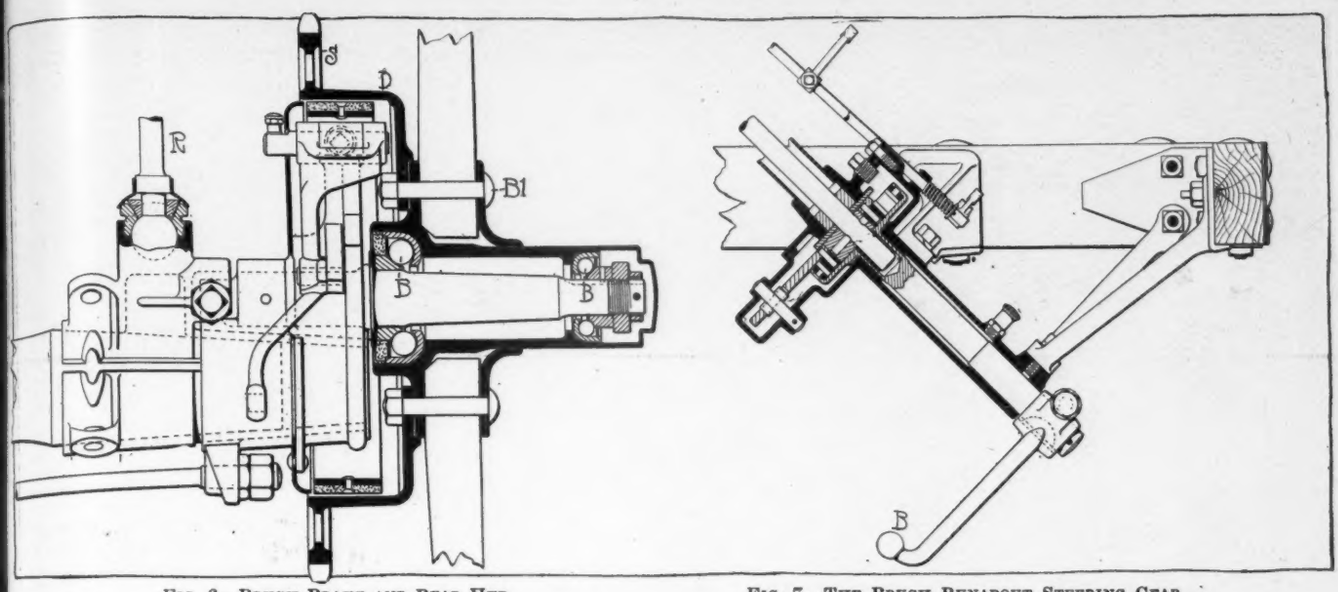


FIG. 6—BRUSH BRAKE AND REAR HUB

FIG. 7—THE BRUSH RUNABOUT STEERING GEAR

locks the spider N so that it is stationary in the case G. This spider carries a low gear pinion LP in mesh with the three pinions P2, which set up a planetary movement around it.

When the driver desires to engage the high speed clutch, movement of the lever results in the closing of the vise on the disks, as follows: Through the compound action of a screw, which is thrown into engagement by the lever system, the original effort of the operator is added to by the torque of the screw, transposing the torque of the motor. All the operator has to do is to make the initial effort, and the pressure resulting is enough to bring the screw into action, when the torque of the motor will serve to engage the clutch by a winding up process, all without the use of a heavy spring and at the expense of a minimum effort on the part of the operator, while, at the same time, the engagement is not only gradual but positive.

This planetary belongs to the internal gear type, is therefore free from noise when well made, and as the system is made, the low speed pinion on the shaft, when going into reverse, transmits its motion through overlaping intermediates, of which there are two pair, thus making the mechanical balance perfect, and assuring adequacy of mechanical ability without having to resort to the use of large members and the resultant noise, inertia effects, etc. The low speed gear which is attached to a spider is free to engage either the high or low speed clutch at will, thus perfecting the device for the purpose.

The jackshaft, Fig. 8, which is placed across the chassis frame in front of the rear axle a sufficient distance to allow of the required length of sprocket chains. The differential gearset G is shown in section, and the cup-and-cone ball bearing B to one side of the housing takes the load at this point. The bevel gear H also shows on the end of the differential sleeve, engaging the driving pinion P on the end of the propellershaft, leading from the motor through the transmission gearset. The large ball bearings B1 and B2 used to back up the bevel drive are indications of the plan of the designer, and as will be well appreciated, the larger the balls are the longer they will last under thrust and high speed conditions, which is the reason for the large balls used.

Fig. 6, a section of the rear axle, shows how the sprockets are fastened to the rear wheels, by engagement at the bolting of the hub-flanges, using the regular hub bolts B1 for holding, and the brake drums D are integral with the sprocket wheels. The brake shoes are of adequate stiffness, remembering that they are of the internal expanding type and have to be stiff to properly work, and the facings are wide, of material which affords a high coefficient of friction, and the means for applying pressure show competence.

The radius rods R fasten to the rear axle just under the spring perches as shown, and a ball-and-socket universal joint, using large sizes of balls for the purpose, takes the work, eliminates noise, and may be adjusted at will.

The cup-and-cone ball bearings B for the road wheels are large for the purpose. One other point before departing from the rear axle design; the means for adjusting the wheels to the bearings includes a large hub nut, castellated so that it can be locked when the adjustment is properly made, and closures are placed to keep grease in the cavity as well as to keep silt out.

The steering gear, Fig. 7, in which the reduction ratio is six to one, is a well-thought-out device. The ball B on the end of the steering lever is 1 inch in diameter,

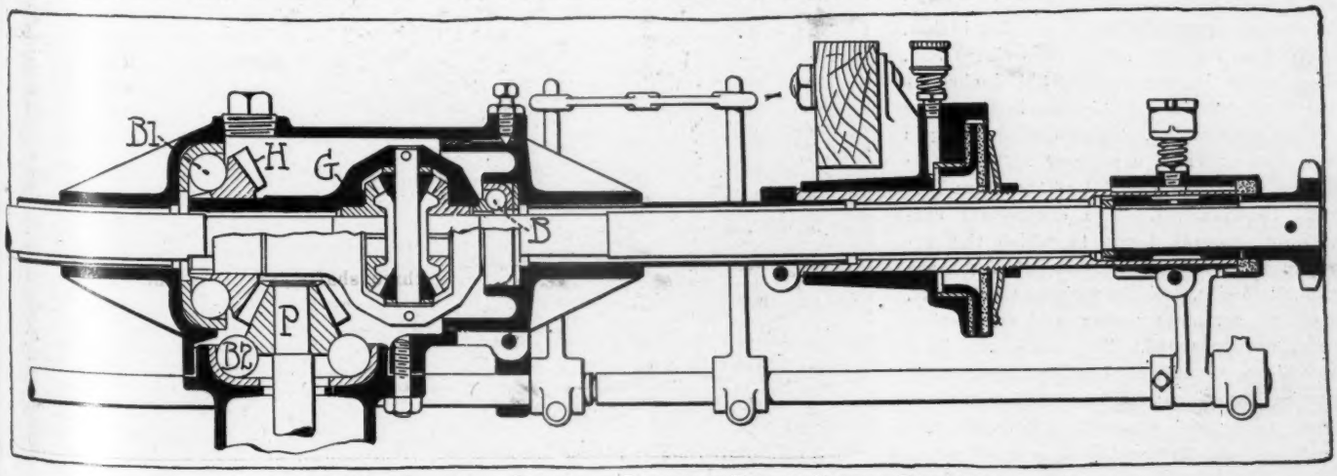


FIG. 8—HORIZONTAL SECTION OF JACKSHAFT USED IN BRUSH RUNABOUT

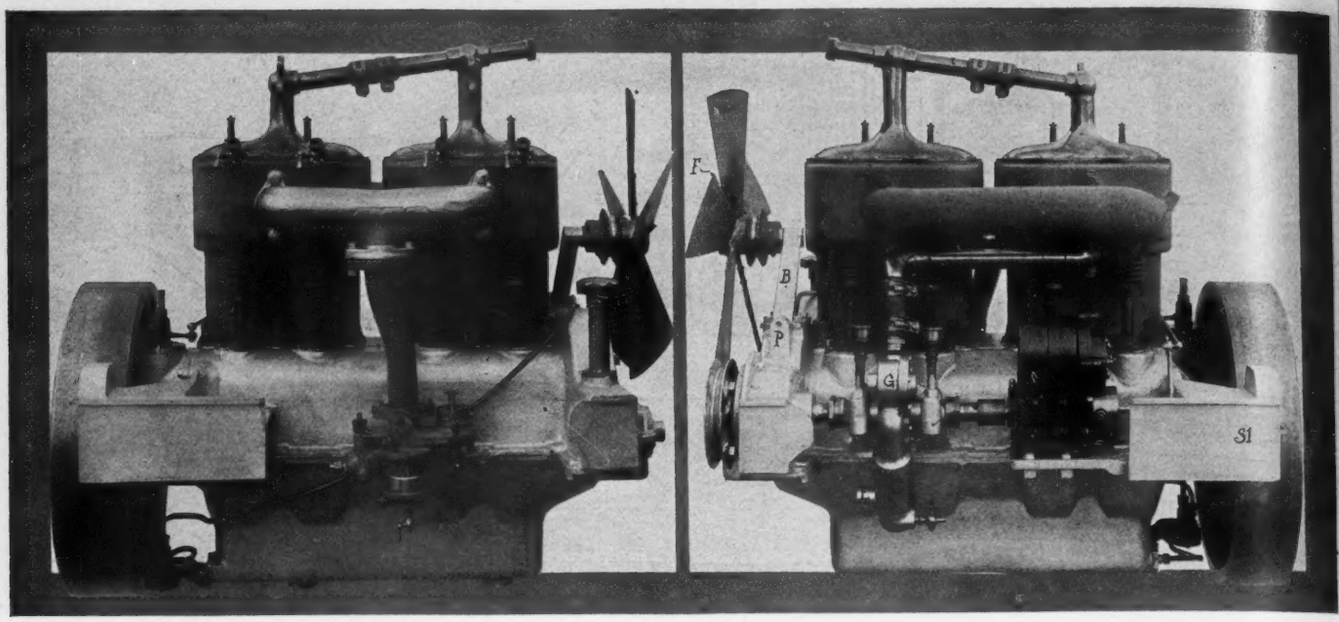


FIG. 1—NEW HAYNES 1910 MOTOR

FIG. 2—GEAR WATER PUMP AND MAGNETO

Only One Haynes Model For 1910

FOR next year the Haynes Automobile Co., Kokomo, Ind., offers but one chassis, designated model 19, and which will be the only chassis used irrespective of body requirements. Model 19 has a 4¼ by 5-inch motor, giving 28.9 formula rating. This model shows many differences over previous Haynes types, some of the Haynes characteristics having been dropped in it being the double flywheel, the roller pinion drive in the rear axle, the one-piece driveshaft in the rear axle, the ratchet pinion of the transmission and the Haynes patented torsion device.

The new car is standard construction in practically every respect, and is but one more example of that gradual converging of all manufacturing effort to an inevitable standard. It has a unit support of motor and gearset and full floating rear axle. The motor with twin casting carries opposite valves made interchangeable and 2 5/16 inches in diameter with 13/32-inch lift, the Haynes company always being an exponent of large diameter valves. Nickel steel heads are used on them. Special provision has been made for a crankshaft support, the four bearings having an aggregate length of 13⅜ inches, divided as follows: 4¾ inches clutch end, 3½ inches in the center, 3¾ inches at the front end, and 1⅜ inches in the outer timing gear casing. This fourth bearing is new and provides a support at each side of the timing gears. All of these are 1¾-inch in diameter. The crankshaft carries an integral flange to which the flywheel is bolted. All bearing surfaces are ground to size, and the reciprocating parts, such as complete piston and connecting rods, are balanced. The crankcase is a two-piece aluminum casting, the lower portion carrying an oil reservoir which is new with this company. Between the reservoir and flywheel is a gear oil pump which elevates the oil to the crankshaft bearings. The drop from these furnishes the splash. Baffle plates across the open cylinder ends prevent an excess of oil reaching the cylinder walls.

Two innovations appear in the cooling system, the first being the use of a gear water pump G, Fig. 2. Beneath is a sediment chamber C, in which is inserted a wire gauze cone, this cone strainer being designed to prevent foreign substances entering by way of the pipe E reaching and damaging the gears of the pump. Both this pump and the Splitdorf magneto are driven from the same gear within the timing gear housing, but there is a jaw clutch between the pump and the magneto. This shaft has bearings on either side on the pump and the usual stuffing boxes are made use of. The other change is in the bracket B supporting the fan, this is a one-arm bracket standing on the timing gear housing at an angle of aproximately 45 degrees. It attaches to a pedestal portion P by means of four studs, the foot of the bracket being slotted where these studs enter, thus allowing it to be moved to the right or left, by which method the tension of the fan belt is obtained, the fan driving from the pulley on the forward end of the pump shaft. The fan is carried on ball bearings and the fan blades are strengthened by having one edge of each blade F turned at right angles to the main body, this stiffening rib being ¼-inch high.

The two camshafts employed are 1 inch in diameter and are each carried on four bearings, the fourth being 1¼-inch long

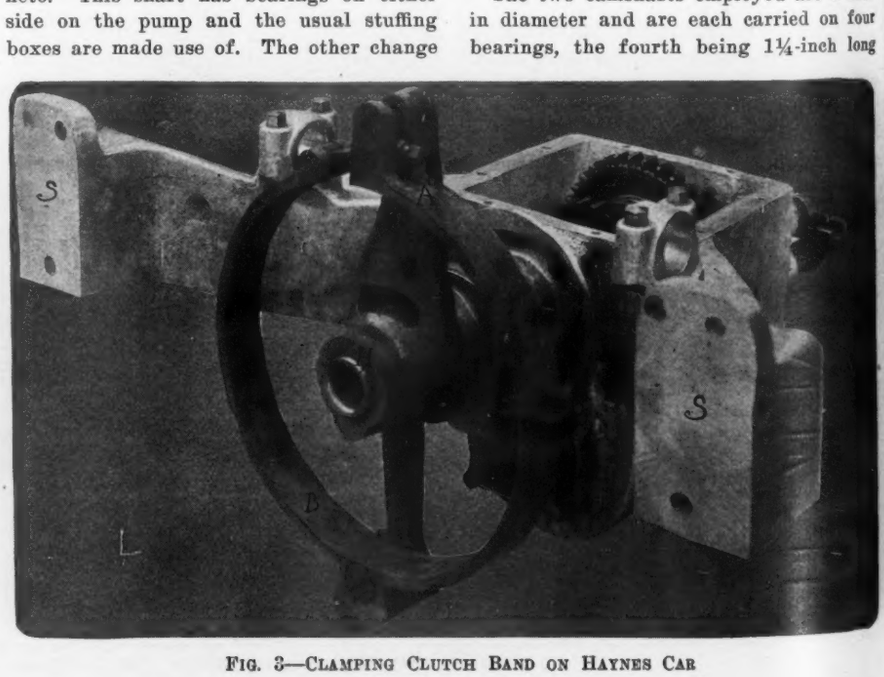


FIG. 3—CLAMPING CLUTCH BAND ON HAYNES CAR

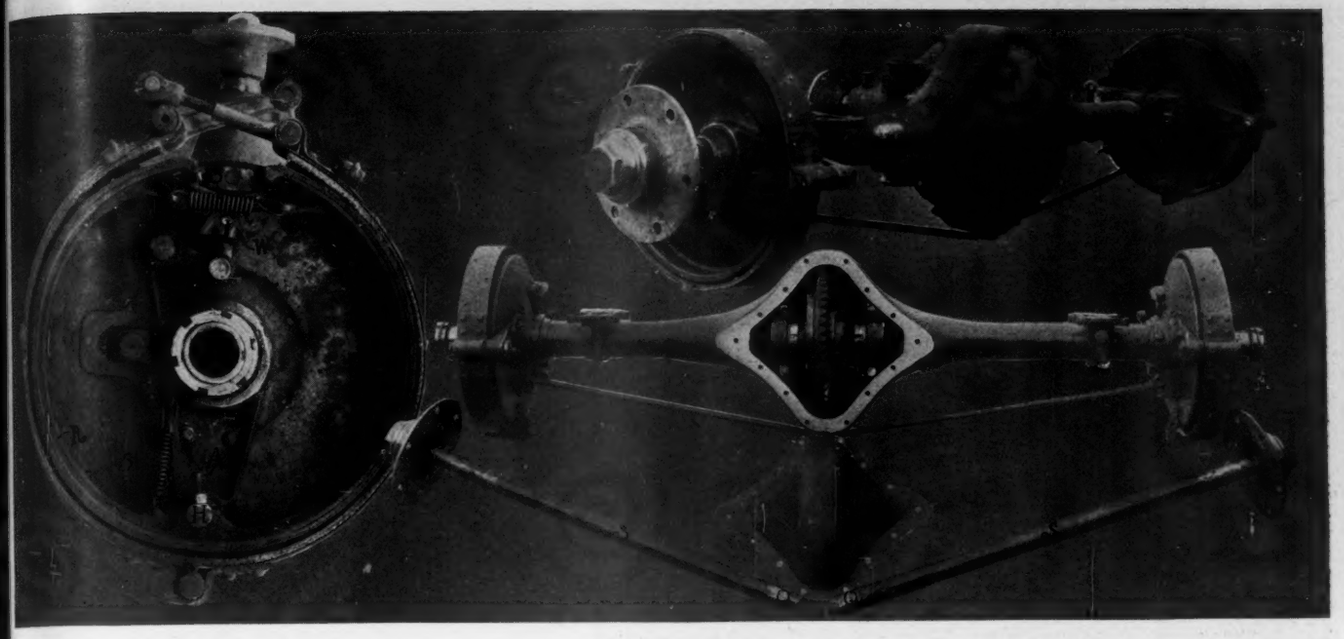


FIG. 4—HAYNES DOUBLE BRAKES

FIG. 5—HAYNES FLOATING REAR AXLE

Several New Features Are Shown

and in the outer casing forward end. The center bearing is 6 inches long, the rear bearing 2⅛ and the front one 2 17/32. The object of this special amount of bearing surface is to prevent the shafts springing away under the pressure required by the cams to open the valves. The shaft is of forty point carbon steel with nickel steel cams pinned in position. Valve timing can be adjusted by adjusting screw with lock nut on the valve lifters. These lifters work in cast iron guides in the crankcase. The pistons carry four rings, three being composite compression rings above the wristpins and the fourth a broad snap ring in the wristpin plane and which serves to hold this pin in place. The three composite rings consist of a broad inner ring, outside of which are two smaller rings placed side by side, the splits on these rings being arranged 90 degrees from that of the big ring. These rings are not eccentric but are ground on three sides and made with a 45-degree angle lap. Connecting rods are drop forgings 10 inches long, double the length of the stroke, and the wristpin end is split and provided with screw and lock nut to adjust this, which is phosphor bronze.

Practically no change has been made in the contracting band clutch which has been used on these cars for many seasons. This clutch is a contracting steel band, B, Fig. 3, operating against a bronze faced drum on the flywheel. The drum is 14 inches in diameter and 2 inches wide. The hollow hub H shows how it is piloted on the end of the crankshaft to insure proper centering of the clutch. Adjustments are made through the threaded plug A.

The gearbox, Figs. 3 and 6, is a unit with the motor, through its two integral supporting arms S which bolt to the end of the arms S1 of the crankcase. These are the only supports of this gearset. The housing is a one-piece aluminum casting with end plates holding the Timken roller bearings. The gears operate selectively, the design being such that the mainshaft is on top of the case directly above the countershaft. All gears are nickel steel.

Transmission of power to the rear axle is through a propellor with double joints. The yokes are hardened and ground and in their slots work hardened and ground trunnions which are on hardened pins. The rear joint is flanged at a corresponding flange on the double pinion of the rear axle, which construction permits of removing the axle without dismembering the joint.

The rear axle, Fig. 5, is a Timken floating type with a pressed steel housing and spur gear differential. The driveshafts S are nickel steel squared at the inner ends Q, where they enter the differentials and carry hub flanges F shrunk on to the outer ends. The torque rod is a channel steel design. This axle carries external and internal brakes operating on drums 12 inches wide and 2¼ inches in diameter. The one-piece expanding shoe R is a floating ring adjustably held at the base point H through an adjusting screw A with lock nut and expanded at the top by the wedge W which is forced upward between the flattened ends of the band, expanding it. The spring S withdraws the shoe from the drum and the second spring S1 carries it away from the drum at the base, giving a full floating support. The frame of the car is nickel steel dropped 2 inches in front of the rear axle and narrowed 4 inches at the dash.

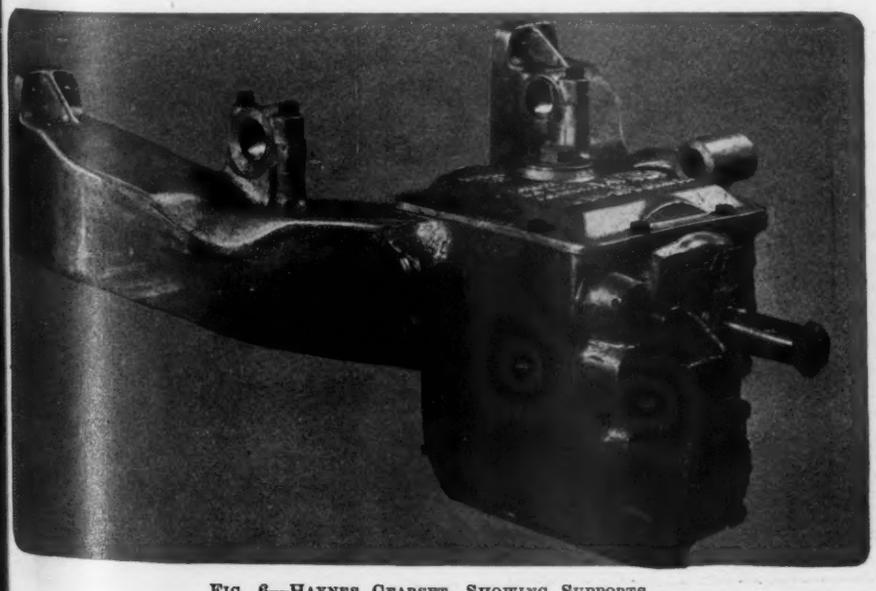
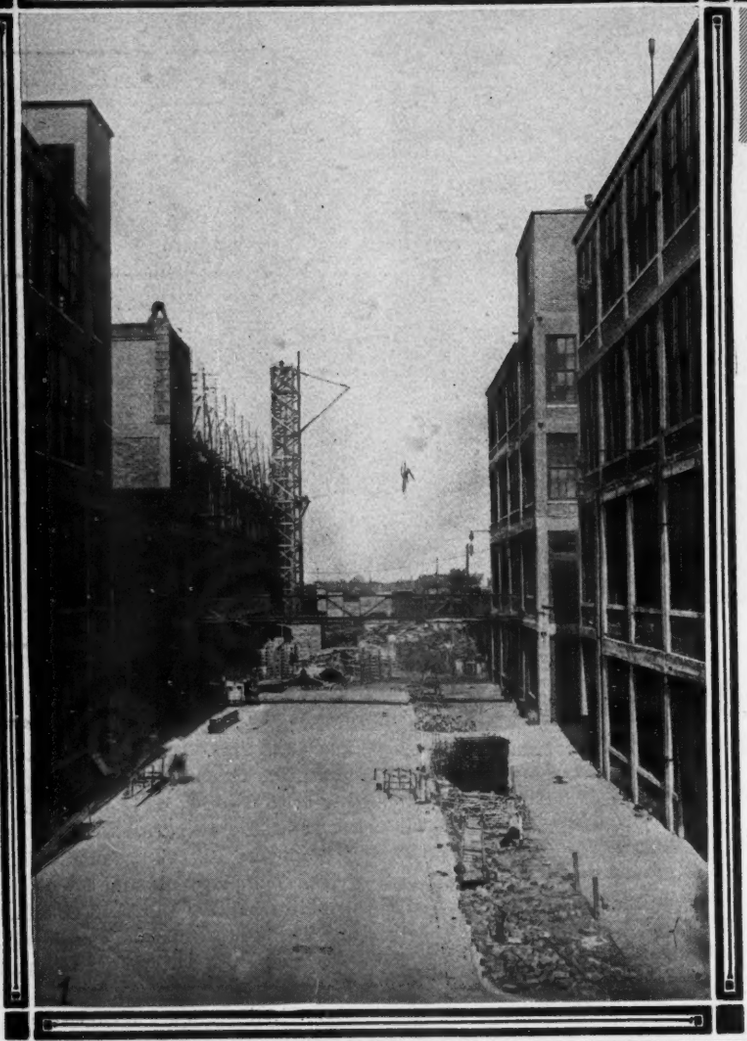


FIG. 6—HAYNES GEARSET, SHOWING SUPPORTS



PACKARD

A DAY'S trip through the enormous plant of the Packard Motor Car Co., Detroit, Mich., where the two models of Packard pleasure cars and the Packard truck are built, is an excellent example of the development of the motor industry in America and evidences the results that may be obtained from consistently developing one type of car without switching from year to year according to the whims of the radical. This factory has during the present year been in a continual state of enlargement, so that with the completion of the present additions to the power house, the foundry, the truck administration department, and the stock department, by January 1, 1910, the total floor space will have reached the mammoth proportions of 21 acres as compared with 2½ acres in the original factory. The growth of floor space has naturally been commensurate with the increased output of cars from year to year, which has been as follows: 1904, 200 cars; 1905, 400 cars; 1906, 725; 1907, 1,125; 1908, 1303; 1909, 2,303, and for 1910, 3,000.

An annual output of 3,000 cars means a tremendous pay roll as well as an enormous force of men. At the president time the Packard force makes a grand total of 5,338, divided as follows: 4,607 constituting the day force, 476 the night force, which is largely in the machine shops, and 255 the army of officials and office help.

The present building activities at the Packard factory are illustrated herewith: Fig. 2 showing the addition of two stories to the administration building, these extra

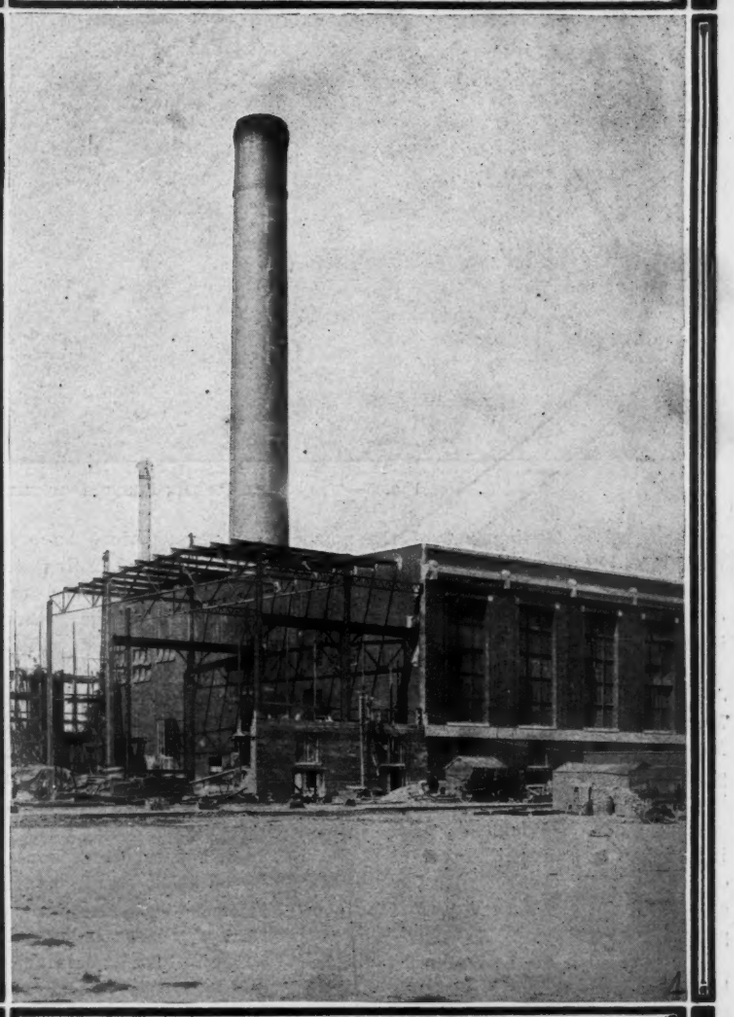
1—Two More Floors on One of Wood Working Shops
2—An Addition to the Administration Building

ENLARGES

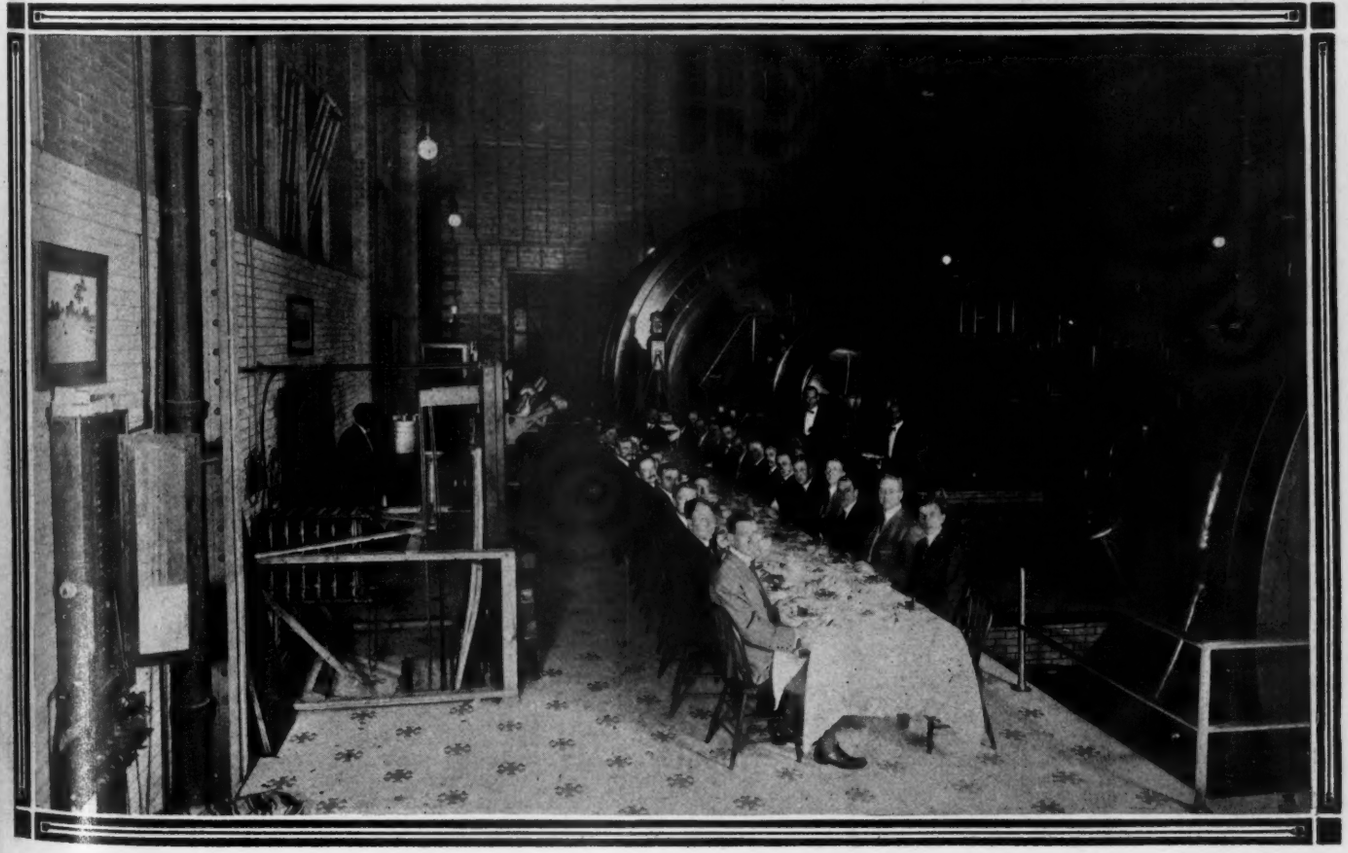
stories being to house the administrative force which will look after the Packard truck business, the new factory for which was illustrated in last week's issue of Motor Age. All of the present additions are re-enforced concrete with the exception of those, Fig. 4, of the power house, which are steel and brick. As the two stories are being added to the administration building not the slightest inconvenience is occasioned the officers of the company on the two lower floors, as the floors are so water tight as to serve a flat roof while the additional stories are being built. All of the building work is done from the outside.

The executive power which emanates from the administration building would avail for little by way of actual results were it not for the immense power plant, which furnishes the power to revolve all of the wheels in the plant. Fig. 4 shows the present addition to this building, and in Fig. 3 is a banquet scene which took place last Friday night in the power house, when President H. B. Joy of the company officially unloosed 4,000 horsepower steam engine and connected the electric switch which set the wheels of the factory rotating under new power.

After the new engine had settled down to work, about thirty executives of the company, the installing engineers and the engineers sat down to a table spread in the engine room, discussed the new power plant and told stories about the rapid growth of the factory, which has



3—Packard Executives Dine in Power Plant
4—Another Extension of Power Plant



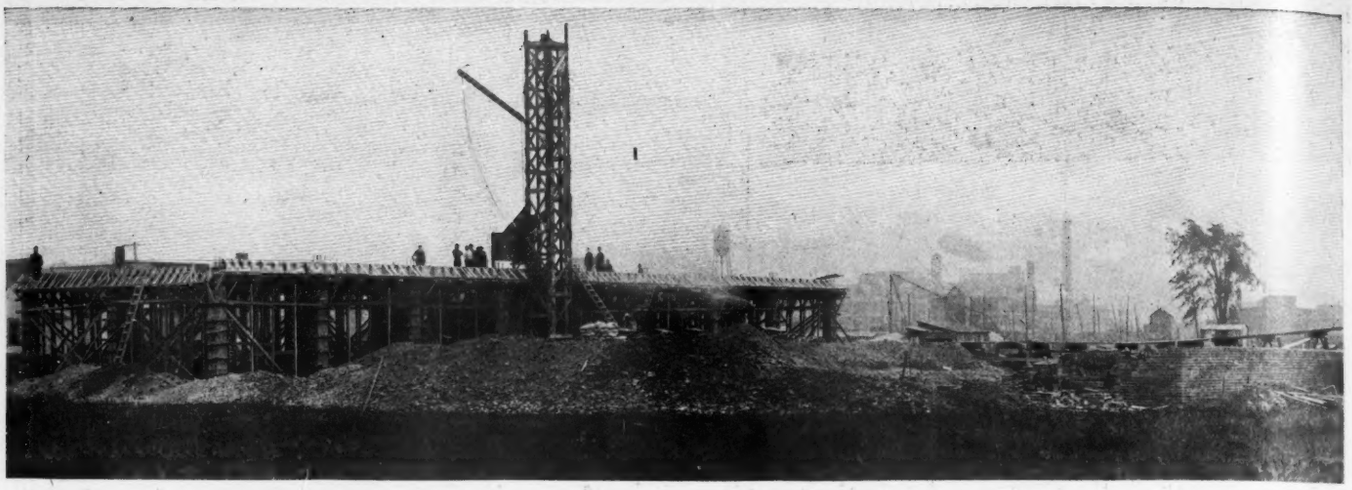


FIG. 5—THIS WILL BE THE FOUNDRY OF THE PACKARD PLANT WHEN COMPLETED

necessitated a development of the power plant until today the three engines in service develop 6,000 horsepower. Another addition to the plant already has been started.

At the head of the table was President Joy and at his right and left General Manager S. D. Waldon and Manufacturing Manager C. J. Moore. The rest of the party comprised F. F. Van Tuyl, consulting engineer; F. C. Monroe, installing engineer; H. A. Hoagland, electrical installing engineer; Fred Willins, chief engineer of the Packard power plant; the assistant engineers and the executives of the company.

The expansion of the Packard plant has been gradual, scarcely a week passing without witnessing the laying of a new foundation for the many additions. These various additions have not resulted in a heterogenous building mass because when the buildings were originally planned cognizance of the future was considered, and foundations of sufficient stability laid to allow of adding extra stories where desired Fig. 6 showing one more example of this by way of an extension of the woodworking plant where all of the Packard bodies are manufactured. Because of these previous arrangements there is a striking similarity among all of the buildings, and each one fronts on a wide, well-paved brick street, shown in Figs. 1 and 6, so that the impression given the visitor is that of a large industrial city with clean, well-cared-for streets and traffic accommodation on a large scale rather than that of a private enterprise. But the industrial spirit goes further, and Fig. 6 shows a situation which exists throughout the entire plant with a view to adequate fire protection. Hydrants are placed at convenient points, one showing in the foreground of this illustration. Not only is this thoroughfare wide, but the sidewalks are wide, and here and there a bridge spans the street affording short cuts between departments, which is intended to economize time and labor in the handling of raw material or finished products.

One interesting enlargement of the plant, illustrated in Fig. 5, is the foundry in course of erection and which, when completed, in the course of 6 weeks, will place the company in a considerably better position in that it will be able to make practically all of its own castings. This foundry trend is taking deep root with many of the manufacturers today.

FIG. 6—PAVING PACKARD AVENUE WITH BRICK, WHICH MAKES GOOD ROADS INSIDE PLANT

Development Briefs

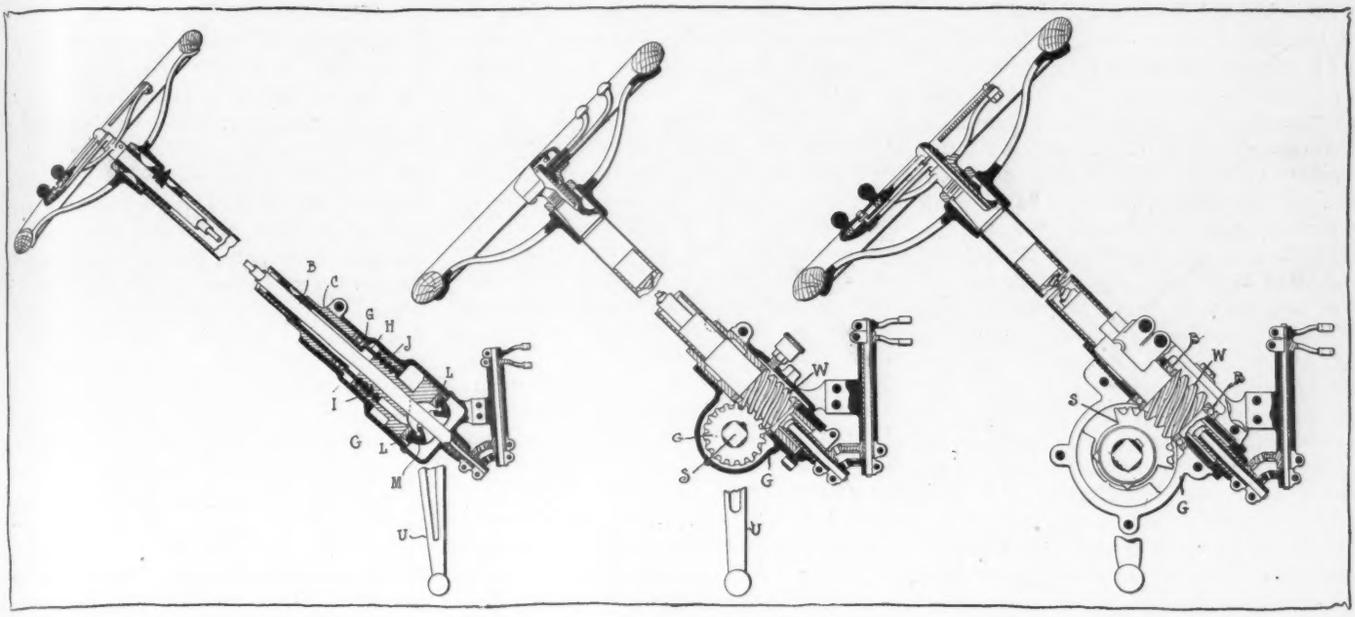


FIG 1 FIG. 2 FIG. 3

The Gemmer Steering Gear

THE Gemmer Mfg. Co., Detroit, Mich., is manufacturing three types of steering gears for 1910. The first is the original Gemmer type, model G, illustrated in Fig. 1, in which the sleeve H has a right-hand thread outside engaging with the nut J and a left-hand thread inside engaging in the nut I. When the steering wheel is rotated in one direction, thus rotating the nut H through its attachment with the column B, the right and left-hand threads work one nut up and the other down against the pivot block L, which block rests on the rockershaft M. This movement forces one end of the rockershaft M down and the other up, which sets up a back or forward movement of the radius arm U. Rotating the steering wheel in the opposite direction sets up the opposite result. In view of the importance of adjustment of steering gear, considering how desirable it is to eliminate lost motion, it will be of advantage to notice that all the work done in imparting motion to the rockershaft M is in compression. The nut J presses on one side, giving a movement in one direction and I presses on the other side, imparting the reverse movement. Under the circumstances the wear on the thread comes on one side only and if the adjusting nut C is screwed down to take up any lost motion there may be in ball thrust G, and continuing, presses on the nut H, which in turn pushes down against the nut I, and J brings the bearing surface of the three threads in contact, and I and J in turn are pressed down against pivot blocks L and they against their bearings on the shaft M, thus eliminating lost motion at all points. Shoulders will not form, as is bound to be the case in worm and sector types of gear, because in this type of gear any movement from the neutral point causes the wearing surfaces to overrun, hence shoulders are prevented from forming, so that after adjusting the mechanism will not bind.

The second type of steering gear is the worm-and-pinion, illustrated in Fig. 2, and known as type O. This is the lowest-priced product the company manufactures. The worm W keys to the steering column and a taper pin is fitted in a taper hole through the shell of the gear and the tube to prevent the worm floating off. The pinion G is keyed in place and the radius arm U is a squared fit on the shaft S. Phosphor bronze bearings are used on this gear, and means are provided for adjusting the thrust surfaces up against the ends of the worm.

In Fig. 3 is illustrated the worm-and-sector gear, known as type K, which is a more costly product than type O, because of the use of ball thrust bearings B above and below the worm W. This steering gear carries a sector S, a keyed fit, on the shaft. This gear is intended for cars weighing up to 4,000 pounds, and is provided with a quadruple thread, 2-inch lead, six pitch, 5½ to 1 ratio of worm to sector, and the throw of the lever is 65 degrees per turn of the wheel.

Although the Gemmer company originally started with one type of gear, illustrated in Fig. 1, the demands of the industry soon demonstrated that manufacturers want different types, to which demands the Gemmer company readily acquiesced, the result being the three types as marketed at present and for next season. The Gemmer plant has been more than doubled recently, and it being a fireproof structure reduces the liability of defaulting on contracts to a minimum. The majority of the housings G for all of the gears are malleable iron. To guard against a famine of this material the company carries a year's supply ahead. In the same way a future supply of drawn steel tubing is stored, so that the problem of being held up for a material is guarded against. The worms used on all types as well as the sectors are made of free cuttings of cementing steel capable of being worked in automatic tool machines. Special hobbing machines are employed for hobbing the worm. The parts are forged in dies and in order to relieve strains are annealed and otherwise prepared for the hobbing process. After the hobbing is done the threads are cut and both worms and sectors are cemented to a suitable depth of carbon penetration. They are then water quenched to render the surfaces of the threads glass hard. The class of material used is of such grade that water quenching is practical and the kinetic properties of the steel are assured by an intermediate oil quenching process.

Manufacturers' Communications

VALUE OF MASTER VIBRATOR

MERIDEN, Conn.—Editor Motor Age—Referring to article on page 20, Motor Age, issue September 30, on the subject of "Master Vibrator Status," I note that the correspondent wishes to know why master vibrator coils have not been brought into more general use in view of their apparent advantages. We believe that the principal reason why these have not been more generally used is due to the fact that up to quite recently coil makers have been unable to construct a coil which would not cause vibrator trouble where a vibrator was used on each separate unit. At present vibrators and coil construction in general has been so improved that the master vibrator coils can and are now being made which will operate for several thousand miles without attention to the vibrators at all. Furthermore, it is a well-known fact that all master vibrator coils brought out up to quite recently required a much heavier current consumption than an individual vibrator coil, due to the fact that you have two magnets to charge. There is no question but what a master vibrator coil will give a much smoother running engine and better synchronism, and is now made as efficiently as the plain individual type. Ours operates on a fraction of an ampere.—E. C. Wilcox, Connecticut Telephone and Electric Co., Inc.

OLDFIELD-BENZ CASE

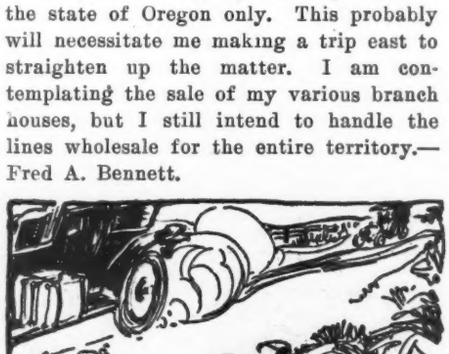
New York—Editor Motor Age—It is my desire to inform Motor Age readers of the position the Quaker City Motor Club, of Philadelphia, took against Barney Oldfield and the Benz car with regard to the race that took place on the Fairmount park course on October 9. Barney Oldfield entered his Benz car, rated according to the A. L. A. M. rating at 59⅜ horsepower and after a period of 5 days from the receipt of the entry by the Quaker City Motor Club, Mr. Oldfield received a communication from it requesting him to send an affidavit that he was an American citizen and the owner of the Benz car. This request he complied with and a request was made through him for us to furnish an affidavit that the car was strictly stock in accordance with the rules of the A. A. A. We did so, but in the face of our complying with every request made upon us the entry was rejected and the following telegram was received by Barney Oldfield: "Contest committee decided not to accept your entry on account of no description of car in manufacturers' catalog; letter enclosing check for return of entrance fee follows.—H. C. Harbach, secretary."

This car is listed in our 1909 catalog. Following this under date of September 29 the club returned to Barney Oldfield his entrance fee of $500. The writer immediately made an appointment with the chairman of the contest committee, R. E. Ross, for Thursday evening at which time he discussed the question at length and the only reason for rejecting the entry that he could ascertain was that Mr. Ross in conversation with Mr. Hower, of the A. A. A., advised him to exclude the Benz car from the race if he got sufficient entries, so that the club could run this race without our support. Under these instructions Mr. Ross retained the entry for the Benz car until he had sufficient entries to assure him a full list. In questioning Mr. Ross upon what grounds Mr. Hower advised him to act in this manner, he stated as follows: "If the Benz car was entered in this race, barring accidents, it would be a sure winner and it would not be a race, but to use Mr. Hower's words 'would be a case,' the Benz car being so much faster that it would not be fair to the other contestants."

Now, as I understand it, this contest was not to be a money-making scheme, but purely a charitable affair, at the same time giving the public an opportunity to see good motor racing, especially those who could not afford to pay for parking space, grand stands or admission to a track. I tried to impress upon the committee the attraction that this driver and car would make. If it wanted to give the public a real race why should it then discriminate and exclude from the race Oldfield and the Benz car?—Jesse Froehlich, Managing Director Benz Import Co. of America.

DOES HIM INJUSTICE,

Portland, Ore.—Editor Motor Age—Publication in Motor Age of an item which stated that I intend closing up all my northwest stores except the one in Portland, where a part of my original line will be handled, does me an injustice, inasmuch as one of my companies has written that as I am closing up my houses it will be compelled to cut my territory down to the state of Oregon only. This probably will necessitate me making a trip east to straighten up the matter. I am contemplating the sale of my various branch houses, but I still intend to handle the lines wholesale for the entire territory.—Fred A. Bennett.



WINTON SIX SPEED CHART

Cleveland, O.—Editor Motor Age—In order that users of Winton sixes may be able to tell at a glance the changes in speed effected by using road wheels of different diameters, different gear ratios, etc., and also to show at what speed the engine must run to drive a car at a certain speed with given size road wheels and gear ratios, the Winton company has compiled a speed chart which is herewith offered for the consideration of Motor Age readers. In using this chart it is best to simplify matters by keying it as follows: E, engine speed in revolutions per minute; G, bevel gear ratios, as shown by oblique lines from the lower right to the upper left of the chart; W, diameter of road wheels, as shown by oblique lines lower right to upper left of chart; S, speed of car in miles per hour as shown by horizontal lines across the center of the chart. The first line in the upper chart denotes first speed; the second denotes second speed and the third denotes fourth. The horizontal line across the center of the chart denotes direct drive. Rules for finding car speed are as follows:

A, to find speed on direct—Start on E, project line vertically to G, thence horizontally to W, thence vertically to Direct and read S.

B, to find speed on first or second—Find S in Direct as in A. Thence concentric to the nearest arc to First or Second, thence straight downward to Direct and read S.

C, to find speed on fourth—Find S on Direct as in A. Thence project line vertically to fourth to the nearest arc, to Direct and read S.

Some examples of the operation of this chart may be found in the following examples.

1—A certain Winton six is equipped with 36-inch wheels and 2.94 bevel gear ratio. What will be its speed in miles per hour on Direct when the engine is turning 1,200 revolutions per minute?

To ascertain this start on E 1,200; project vertically to Direct and read S= 43.7 miles per hour.

2—Same as example 1 except on Fourth instead of Direct.

Find S-43.7 on Direct as in example 1. Thence project vertically to Fourth and parallel nearest arc back to Direct where S=55.2 miles per hour.

3—Same as example 1 except in Second instead of Direct.

Find S-43.7 on Direct as in example 1. Thence parellel nearest arc to Second; thence project straight down to Direct where S=30.7 miles per hour.

4—At what speed must engine be run

in car described in example 1 to drive it 60 miles per hour on fourth?

Start at S-60, parallel arc to Fourth; project straight down to 36W, thence horizontally to 2.94 G, then down to E= 1310.

Taking example 1 as an illustration, one starts at A, the revolutions per minute, and follows the vertical line to B, the gear ratio, from which point the pencil route goes to C, the wheel size, and from there it runs to D, which gives the miles per hour, each of the vertical lines at this point representing 2 miles.—Winton Motor Carriage Co.

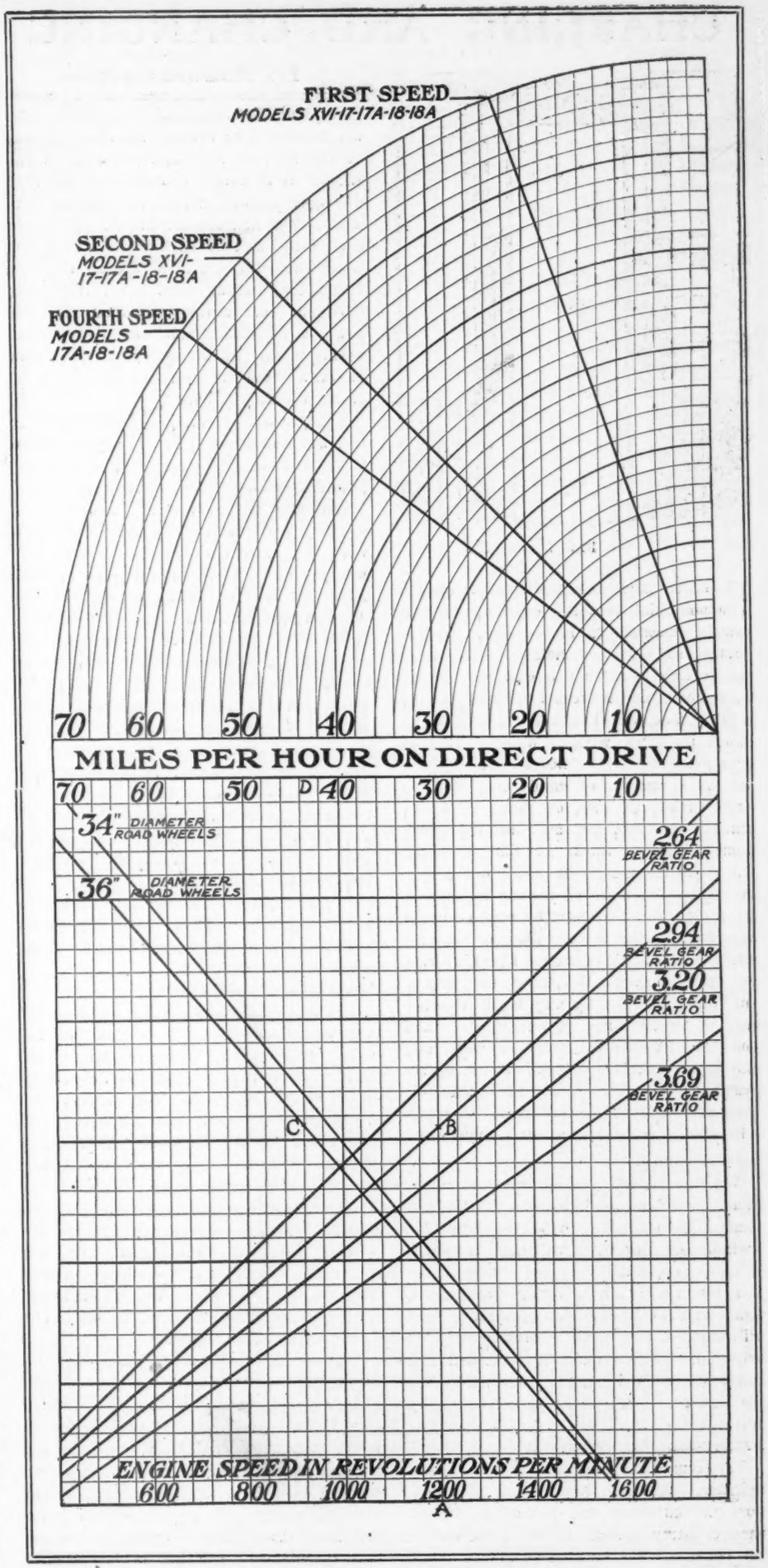
FORD ON CLASSIFICATION

Detroit, Mich.—Editor Motor Age—Classification according to price in motor competition events is not a fair one for the manufacturer whose product, while selling at a low price, is competing in sales with cars at higher prices. Of what benefit is it to us to defeat other cars in class 6 in a class A race? And yet the rules limit us to this class in a stock car event. Classification according to weight puts a premium on weight. Without referring to the respective merits of the light and heavy weights in motor car construction, we do not concede the right of any organization to decide for us the proportion that shall exist between weight and piston displacement. This is purely a matter of design that should be left to the manufacturers.

The proper racing classification is one that considers cylinder displacement only. A race or hill-climb or endurance run would soon prove whether or not the weight is right. A 300-inch car should be considered the rightful competitor of every other 300-inch car. Motor car racing differs from prize fighting, though the present rules do not recognize this difference. There is a reason for featherweight, middleweight and heavyweight classifications in the one, but motor car building is a mechanical proposition in which weight figures as one of the ideas of the designer.

Another ruling which, while not an A. A. A. ruling, finds favor among promoters and, in its use, works a hardship on builders of light cars,, is the rule under which so-called economy tests are conducted. Instead of the car which actually runs farthest on the least fuel winning, it's the one that makes the most ton-miles.

The average buyer wants to know which car will use the least fuel, and be the least expensive to own and operate. The economy test tells him that, while this car or that car will not go very far on a gallon, it does go a long distance considering how much it weighs. Here again cylinder displacement should govern. It's the most absurd of all folly which, in determining the economy with which a car can be maintained, actually takes no account of the dollars and cents, but bases results on pounds avordupois.—Henry Ford, president Ford Motor Co.



SPEED CHART DESIGNED BY WINTON MOTOR CARRIAGE CO.

CHARGING AND CHANGING OF BATTERIES

By Howard Greene

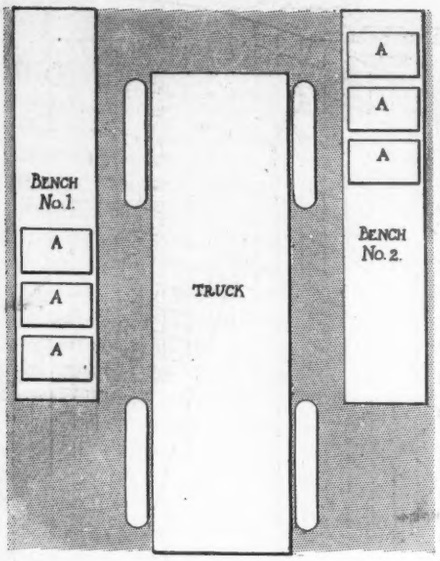


FIG. 1

IT is frequently necessary for electric commercial vehicles, especially of the heavier classes, to be equipped with a change of batteries each, so that when the battery in a truck is exhausted it can be removed and a freshly-charged one put in its place, enabling the machine to go about its work without delay. Such an arrangement may be necessitated by any one of a number of conditions, or by a combination of two or more. For instance, the machine may be doing extremely heavy work, so that a single charge is insufficient to finish out a day, and time for a boost cannot be spared. Or the current for charging may be available only during the daytime, so that the usual practice of charging at night cannot be followed. Whatever the reason for changing batteries may be, it is necessary to provide some reasonably quick and convenient means for doing the work, and the labor must be reduced to the lowest possible point, for in a 5-ton truck, for instance, each of the six trays or crates will weigh not far from 400 pounds—no joke to handle.

Where a traveling hoist, crane or equivalent device is installed there is little difficulty in changing batteries, and the method here described will have no place. It not infrequently happens, however, that it is not practicable to install such permanent apparatus, and yet something that will answer the purpose satisfactorily is required. Such a plant is described and diagramatically illustrated herewith. Its merits have been thoroughly proven by actual service.

Battery-Changing Apparatus

The apparatus consists of two heavy benches, No. 1 and No. 2, Fig. 1, to support the batteries and the wiring necessary to carry current to the batteries on the benches. The benches should be about 10 feet long for a large battery, so as to give plenty of room, and 2 feet wide. The height should be exactly the same as that of the floor of the battery cradle in the truck. It is hardly necessary to say that no light lumber should be used in this work. The benches are placed parallel to each other and at such a distance apart that when the truck is driven between them, equi-distant from each, the space between the battery cradle and the benches on either side can be spanned within a few inches by the battery skid or table used to haul out the trays or crates for inspection.

The process of changing batteries is as follows: Referring to Fig. 1, suppose there is a fully-charged battery in six crates, placed as shown, three crates on bench No. 1 and three on bench No. 2, at diagonally opposite ends of the benches. The truck with the battery requiring recharging is brought up midway between the benches until the battery cradle is opposite the empty space on bench No. 2. The skid or table is brought into service and one tray at a time is slid out of the cradle, along the skid and onto bench B. A small iron roller placed on the bench will very greatly facilitate matters—in fact, it is essential. When the three trays of the exhausted battery, which is called battery B, are on No. 2 bench the truck is moved forward, under the power of the half of battery B still remaining in the cradle, until the empty half of the cradle is just opposite the three crates of battery A on the same side. These are transferred to the cradle with the aid of the iron roller and the skid, and connected up in the usual way.

Completing the Operation

Leaving the truck as it stands, pass around to the other side and you find the other three trays of battery B, still in the cradle, conveniently opposite the empty space on No. 1 bench. They are disconnected, slid out and onto the bench and the truck shifted backward, now using current from the half of the fresh battery A on the other side, until the remaining half of battery A can be slipped into position. When this is connected up the job will be finished. By using an extra set of jumpers, as the short connecting cables between the trays are called, the exhausted battery on the bench can be connected up in series and charged.

Fig. 3 shows the arrangement of the wiring for recharging. The use of the charging plug and receptacle, as shown, is very convenient, for the same charging plug, when connected by a cable to the switchboard can be inserted in the receptacle through which the battery on the bench is charged, or in the receptacle on the truck itself for charging the other battery while in position in the cradle. From the receptacle one wire E is carried across to the farther bench, where it connects with a piece of flexible cable long enough to reach the points indicated in the diagram. A second wire F crossing from one bench to the other has a flexible cable at either end, as indicated, and serves to connect the trays in exactly the way they would be connected if they stood all in a single row. The circuit is completed by the second wire, with its flexible cable, making connection between the charging receptacle and the battery. By following the path of the current through the wiring and the battery it will be seen very readily that the connections are in series throughout. The dotted lines show positions of the cables and jumpers when battery B has been substituted for battery A.

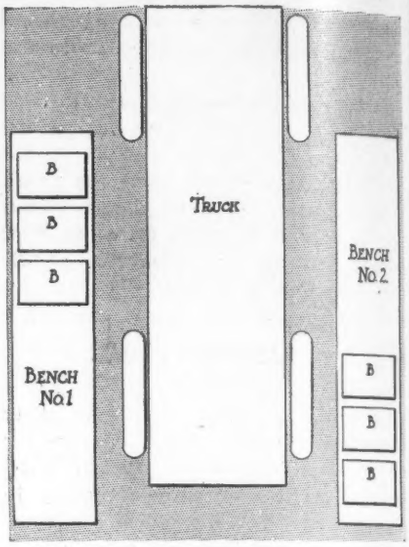


FIG. 2

Care Should Be Exercised

The greatest care should be taken to make sure that the current flows to the battery in the right direction—that is, that the positive supply wire is connected to the positive battery terminal and the negative wire to the negative terminal. A mistake in this, if not quickly discovered, means the practical destruction of the battery. The charging plug has a brass outer shell and a central brass plug, thoroughly insulated from each other and connected each to one of the supply wires; the receptacle C also has an outer brass shell, inside of which the plug shell fits snugly, and an inner brass tube, into which the central connection of the plug goes, making close contact. The outer and inner contacts of the receptacle are insulated in the same way as those of the plug and connect with the wires leading to the battery. In the standard plug and receptacle the outer shell is always connected with the negative wire and the central part to the positive wire. Upon examination it will be found that one of the wire connectors on the receptacle, for

attaching wires leading to the battery, is in the center of the iron casing and the other near the edge, thus indicating plainly that one is attached to the central tube and the other to the outer shell. Thus the negative and positive supply wires are easily distinguished. In the case of the battery, it is usual to place the negative terminal on the right, as one stands facing the terminal end of a tray, and the positive on the left. This rule is not always followed, however, some makers reversing it, so that the instruction book should be consulted, or, this failing to give the information, the manufacturer.

Flexible Cables Useful

By making the flexible cables reaching to the trays of just the right length, it will be practically impossible to make connections incorrectly. With the jumpers in place between the trays, there will be only two places on each set of three trays where connection can be made—one at each end. If one cable is connected at the wrong terminal the other cannot be connected to the remaining terminal because it will not reach that far. To be sure, the three trays might be shifted to the middle of the bench so that the cables could be crossed, but while there are plenty of men who will make a mistake if it can be done easily, there are very few who will take the trouble to move 1,000 pounds of lead just for the sake of doing something the wrong way. In actual service this arrangement has been very successfully handled by men who knew nothing whatever of batteries or wiring—ordinary laborers, in fact—who failed to do anything worse than to leave a jumper disconnected or a terminal screw loose.

While the current from a battery, even if large, cannot do any harm or even make itself felt by passing through the human body, it can do startling things if short circuited. For instance, suppose the battery A is connected up as shown in Fig. 3, but the plug is removed from the charging receptacle C. Now, if a piece of metal is placed across from the shell of the receptacle to the central tube of the receptacle, the entire battery will be short-circuited, and with a blinding bluish glare the connecting bit of metal probably will melt instantly, as will also the brass of the receptacle in contact with it. The flash and the heat are extremely dangerous to the eyes, and temporary blindness lasting, to the writer's knowledge, 2 or 3 days, to say nothing of singed eyebrows and lashes and scorched skin, may be the result of such carelessness.

Slight Shocks Often Felt

When a battery is on charge slight shocks are often felt on touching the terminals, or even the jars or trays, if wet, especially if the ground or floor underfoot is damp. In a damp place stray currents find their way around almost everywhere and litle shocks follow the touching of metal parts of the truck or switchboard. This is in no way injurious, however, and is not from the battery but from the charging current. If it is found inconvenient, it can be avoided by standing on a piece of dry board or wearing rubbers.

Commercial Brevities

The Belvidere Hansom & Coupe Co. of Baltimore, Md., has been purchased by the Taxicab Co. of Baltimore from Harry M. Little and Charles H. Knapp. It is the intention of the taxicab company to have twenty-eight more cars in service by October 15 for serving all the hotels, outside of the Rennert. The company also serves the Union station. The Taxicab Co. of Baltimore has, furthermore, leased Little's stable, 413 North Howard street, which it will turn into a modern garage. This structure will have a brown stone front and three floors. The building has a frontage of 175 feet and is 170 feet deep. The Taxicab Co. started last year with five cars and business has flourished so that this number has gradually increased, necessitating the building of the large garage to accommodate the machines.

The popularity of the taxicabs in Baltimore has made it plain that the days of the old cab horse and cabby are numbered and that the latter will be out in the cold unless he moves along with the progress of the days. Already many of those fellows who have for years driven cabs are attending motor car schools, while not a few are to be seen at the helm of taxicabs. This is particularly the case with the new taxicabs just put in service by Harry L. Stewart, the ex-liveryman. A number of these machines are driven by Mr. Stewart's former cab drivers, who for several weeks previous to the operation of the taxicab service, studied the art of driving motor cars and are now expert chauffeurs. The latest taxicab company has twenty-five cars in service and will increase the number as business demands which now looks to be the near future.

The Middletown, Conn., fire department has ordered of the Pope Mfg. Co. a combination motor chemical wagon. In general construction the car will approximate the 1910 production of the Pope company. A speed of 35 miles an hour will be possible with this machine.

City Councilman H. J. C. Hoffman, of Baltimore, has decided to introduce an ordinance in the council when that body convenes, asking that the gift of a motor car for official calls and inspection duty be made to Mayor Mahool. Mr. Hoffman got his twentieth century idea during his trip west recently, when the members of the body were making a study of natural gas. In many cities he found that large touring cars had been presented to the chief executives to be used on tours of inspection and other municipal functions. He immediately decided that the same progressive feature should be in vogue in the Monumental city and he is putting his idea into execution.

A taxicab service has been put in operation in Baltimore by Harry L. Stewart, proprietor of Stewart's Central stables. Mr. Stewart's plan will represent an outlay of $80,000 and at the start twenty-five taxicabs will be placed in service. The chassis of the cars will be of the French Bleriot design and the bodies will be made by the American Locomotive Works. The bodies of the cars will be blue and the wheels will be painted red. Chauffeurs will be attired in blue livery to match the color of the cars. Mr. Stewart already has turned his stables on West Eager street into a garage, and some of the cars will be stored at 211 Park avenue, his headquarters. Meters registering the distance traveled and the fares will be attached to front axles of the cars.

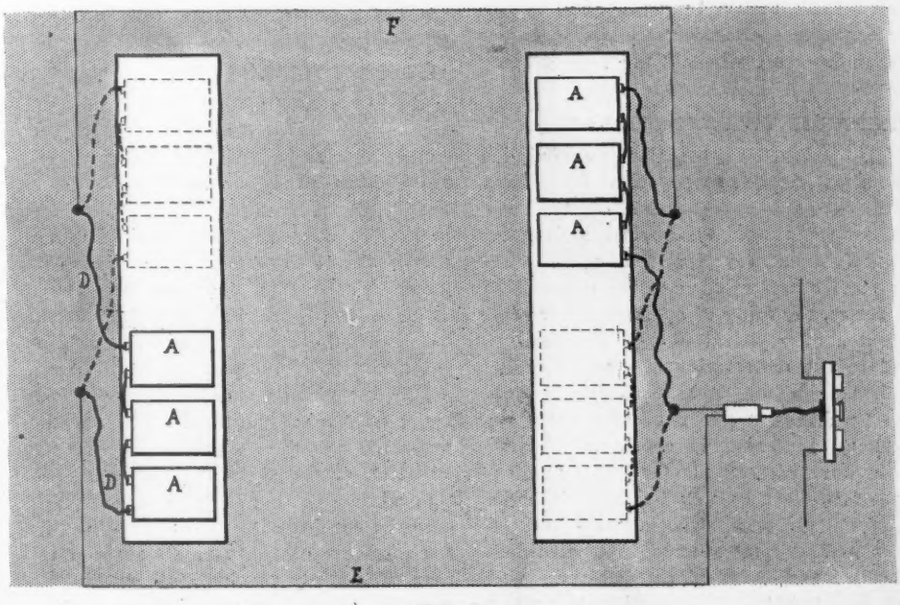


FIG. 3

Legal Lights and Side Lights

INSURANCE POINT DECIDED

WHAT is believed to be the first case tried in Baltimore for a loss sustained upon a motor car insurance policy was heard before Judge Elliott and a jury in the court of common pleas, the case being the suit of William P. Cummings against the British and Foreign Marine Insurance Co., Limited, of Liverpool. Mr. Cummings last February bought a Pope-Toledo car and shortly afterwards had it insured with the defendant company for $1,500, paying a premium of $60. In the insurance application it was stated that the car was a 1907 model, No. 2,048. The car was destroyed by fire April 24 last, while being used by Mr. Webster. The insurance company raised the point that the car was not a 1907 model but a 1906 car, and that the company would not have insured a 1906 car for the same amount, but would have charged a larger premium. The company furthermore contended that the value of the car had been greatly overestimated, its theory being that the policy was void by reason of the misrepresentations in the application for insurance. Myer Rosenbush, attorney for Mr. Cummings, argued that the policy contained no clause declaring the policy void in the event of any incorrect misrepresentations. Thomas B. Webster, private secretary to Mr. Cummings, through whom the car was purchased, testified that the information concerning the number of the car and the year of its make was given to him by the dealer from whom he purchased the machine and that he had no personal knowledge of the facts. The court refused the contention of the company and granted the pleas of the plaintiff. The jury promptly brought in a verdict for the full amount of the policy, with interest to date, less the present value of the car as shown by the testimony, the verdict being for $1,430.

PREPARES TO ENFORCE LAW

The Massachusetts highway commission has already begun preparations for putting into effect the remainder of the new motor law passed by the last legislature. On July 1 last four sections became effective and others relative to the preparation of forms, the filing of applications for certificates of registration and for licenses, and to the distribution of number plates and seals go into effect December 1, while the remaining sections become operative January 1. There is considerable work to be done because the forms for applications and licenses will be very different from the old ones. The contract for the 1910 number plates have been awarded. It called for 52,790 plates and these will cost about $6,900. The design is similar to this year's plate, except that the colors are reversed so that the figures will be blue on a white background. The commission has not stated yet what decision it has arrived at relative to how it will compute the horsepower of cars under which the machines will be taxed. However, it is very probable that the A. L. A. M. rating will be used. What allowance will be made for second-hand cars and loss of power is not known. As a result of the present law the state has received a gross income from motor cars up to October 1 of $158,629.52. This is $43,872.52 more than last year. Here are the comparative figures showing the great increase this year over a year ago:

Registrations—	1908	1909
Motor cars	17,317	22,804
Motor cycles	1,850	2,306
Manufacturers and dealers	374	482
Licenses—		
Private operators	5,270	7,570
Chauffeurs	6,096	8,514
Receipts	$114,757	$158,629.52

WOULD BAR WOMEN DRIVERS

There is agitation in Milwaukee to prohibit the operation of motor vehicles of any kind by women in the downtown district, but it is believed only a bare possibility that the council will officially recognize the matter. A large majority of people, owners and non-owners, oppose such prohibition, and reason that the woman driver is the safest driver after all; that she takes no chances, is not the least reckless, and maintains speed limits much better and with greater conscientiousness than men. There is not one case on record in Milwaukee of an accident to a car operated by a woman. Milwaukee is believed to have a greater percentage of women drivers in proportion to men than most cities of the United States, although it is true that the electric vehicle is used by the majority.

USE OF TOLL ROADS

As to whether or not the use of a toll road on which the customary fee has been paid allows a motorist to travel at any pace he chooses is answered in Werick vs. State, 121 N. W. (Wis.) 652. There is a statute in Wisconsin that provides in substance that no one may drive a car on a public highway at a greater speed than 12 miles per hour. The defendant in this case drove his car at a speed in excess of the limit set by the statute, but did so on a toll road which was owned and controlled by a private corporation. The question presented was, did such an act constitute a violation of the statute? The court held that while a toll road might for some purposes be considered a private road, yet for the purposes of the motor statute a toll road was a public highway within the meaning of the statute. "The manifest purpose of the law was to protect travelers upon public ways from being subjected to the peril created by unduly speeding motor cars thereon. It is just as important to afford such protection on toll roads as on ordinary public highways. There is no difference whatever," said the court.

RULES ON TESTING CARS

The Massachusetts highway commission in a recent decision showed that it intends to make chauffeurs and repair men use judgment when they handle cars that are left with them to be repaired. In the case in question Alexander O. Anderson, a professional chauffeur of Boston, lost his license for 1 month as a result of a complaint made against him by Adams D. Claflin. It was alleged that Anderson used Mr. Claflin's car without permission and injured the machine. Mr. Claflin stated that he had given explicit orders that the car was not to be taken out unless he was present. Anderson said he took the car out to test it and he did not know of any orders left by Mr. Claflin. "The use of a motor car on a trip of 150 miles, mostly after dark, for the purpose of testing it, is not within the express or implied authority which can reasonably be attributed to persons entrusted with the repair of other persons' cars and such a use is improper and unauthorized," was the comment made by the highway commission. Continuing further the board explained its action as follows: "The board imposes this slight penalty because it is the first case of this kind which has come before it, and it realizes that many repair men and chauffeurs have thought that they had implied authority to use other persons' cars in this manner; but the board feels that this practice should be stopped, and that the testing of cars by repairmen and others, when the owner is not present, should not be carried beyond reasonable limits, and that certainly a trip of 150 miles is one far beyond 'reasonable limits.'"

CITY LAW UNCONSTITUTIONAL

The Ohio supreme court has handed down a decision which clearly establishes the unconstitutionality of a municipality enacting ordinances licensing motor cars. The case came from Cincinnati and was styled Coulter, a taxpayer, vs. City of Cincinnati. Coulter maintained that an ordinance providing for licensing motor cars enacted by Cincinnati was invalid and the lower courts held against him. The highest tribunal reversed the decision of the lower courts and held the same as in the case of Frisbie vs. City of Columbus. Thousands of dollars are saved to motorists by the decision and general satisfaction is shown.

Motor Car Shop Kinks

MOTORISTS are sometimes advised to bend the headlight brackets in order to direct the headlight beams straight forward. If the brackets are materially sprung this is of course unnecessary. If, however, the beams slant only a trifle to the right or left, it is generally possible to rectify them by bending the burner slightly in the same direction, that is, if the beam runs to the right, bending the burner to the right will straighten out the beam. Of course only a slight bend should be attempted, and if the burner is soldered in place it is better to bend the bracket rather than risk breaking the solder. When the burner is adjustable, it will be found on examination to be held by a plate which is clamped by screws to the bottom of the lamp body in such a manner that by slackening the screws the burner can be shifted slightly forward or back. In a case like this the actual bending takes place in the lamp body itself where it does no harm. It is worth the while of any one who drives much at night to take pains to keep his lighting equipment at concert pitch. For example, if the headlights are adapted to throw beams of reasonably long range they should not be slanted downward, but should face straight ahead. A downward slant causes the beams to strike the road very close to the car, and the strong illumination at that point causes the pupils of the driver's eyes to contract so that he cannot see more dimly-lighted objects ahead as well as he can if the ground close at hand were not so strongly lighted.

SELECTING AN EMERY WHEEL

It is an error to believe that all materials can be ground equally well with one and the same wheel. One would not expect to turn all kinds of lathe work with one tool having only one form of cutting edge. Different shapes of work, different kinds of metal, require different cutting edges as well when grinding as when turning; therefore different grades and grains of wheels are required for different kinds of work. Grinding wheels are numbered from coarse to fine, and graded from soft to hard—the grade being denoted by the letters of the alphabet, from E to Z. Get the proper wheel for the proper work. If uncertain as to the proper wheel to use, consult the dealer, giving the full details; the spindle speed and character of the material, the shape of the work to be ground and the surface of the wheel in contact are prime factors. In cylindrical grinding, speed of work, diameter of work and depth of cut must all be reckoned with in the selection of the right combination of grain and grade. The condition of the machine also affects the efficiency of the wheel. Heavy machines with large wheel spindles and massive wheel support call for different wheels than lighter machines and smaller spindles; and if the work is to be applied by hand that, too, will make a difference. It is a common error, when grinding steel and cast iron, chilled iron and hardened steel, that to produce a fine finish a wheel must be as fine as the surface desired. A coarse wheel will produce a fine finish, if certain facts about grade, depth of cut, speed of work, speed of wheel, etc., are observed. When grinding brass and the softer bronzes, to obtain a finish the wheel must be as fine as the finish required. Bronzes with manganese or phosphor admit of coarser wheels. Don't get a wheel made for soft steel for use on hard steel. For a fine finish on hard stock, a coarse wheel may be necessary and the harder the stock the coarser the wheel. The width of the wheel should be in proportion to the amount of the material to be removed with each revolution of the work; and if the width is reduced, a finer feed must be used.

Hints For the Owner

A MOTORING TOM SAWYER

Much has been written and more has been said about the rake-off that chauffeurs take in parts and supplies, but who has heard of the driver who doubles up on these propositions and gets another bit of income in putting on the car these parts and sundries, and then adds some more from repairs. That was Bill's game. A broken rear axle or a big-sized trouble with a crankshaft is a source of unalloyed joy to Bill and brings forth a more than usual expansive smile. Why? Because he runs a school for chauffeurs right on the spot. Just let him hear that some friends of a friend's friend has in mind to attend a school of motor instruction and at once Bill got after that friend, of any remote numerical succession, and proves to him that money paid into a school is throwing it at rainbows, that the only real substance in color effect and the simon pure way to learn how to drive and to take care of a motor car, to advance from the labor of whitewashing to a profession of honor, and of considerable profit, is to get knowledge first hand, to scrape up an acquaintance with a bearing and to adjust a secondary circuit with the current full on. All this and much more can be done by the shortest cuts and at the least expense by paying Bill an on-the-spot fee and taking direct lessons on actual repairs to be done. You would see as many as four men putting in a spark plug and ten replacing a rear axle that had gone wrong in the differential or at the brake band lug. Then, of course, there was a run around the block to try out the fixed part, with practice at the steering wheel, the levers and the control. The joke of it was that for a long time all the other chauffeurs thought Bill was paying these fellows to help him. His employer? Well, Bill showed where he got his work out in one-half to one-quarter the time of the other chauffeurs around the garage, and then he worked for less.

BOY WISER THAN OWNER

Too wise to need the services of anyone and finally falling before the 14-year-old of a friend who owned a car, was the experience of one owner who drove his own machine. He knew it was water in the carbureter that gave him all his trouble every morning for a week when starting up and blamed the washer, claiming that in some mysterious way the water got into the gasoline tank; how he never could explain. Removing the drip plug from the carbureter did no good, but cranking the engine for 5 or 10 minutes did away with the trouble. It was water after all, and here is the explanation: The air intake on the carbureter had a tubular screen slipped over it and this screen was just over a dustpan that extended straight out from the engine side to the frame side. Under this screen and in the pan sheet was a slight cavity. When the machine was washed with the hose some of the water would spray through the bonnet side openings, and what didn't run off would collect in this pocket. Of course on cranking this water would be picked up by the suction and in quantities enough to affect the mixture. The boy in question pointed out the cause.

KEEPING THE HANDS CLEAN

Elbert always had clean hands. He looked after his own car and no matter how dirty a job he had on hand or how often there was always those clean, bookkeeper-like hands and nails. He carries two round flat cans, in fact they originally did service as containers for russet shoe dressing. In one he keeps a lot of the oil soap used at the garage for washing the cars, in the other he carries flour of pumice. But the essential part of his scheme lies in the fact that before he starts working on his car he takes some of the green soap and rubs it thoroughly into the pores of his hands and around the finger nails. With a little rubbing the soap apparently disappears, and, in fact, does not leave the hands slippery. After getting through with his work he simply dips his hands in some water, rubs them to bring a lather, and then dips them in the pumice if he has gotten them particularly black. Ordinary washing process then takes place.

From the Four Winds

N S E W

REEVES FAMILY, WINNER OF FIRST PRIZE IN YONKERS PARADE

Boston Dealers On Outing—The annual fall outing of the Boston Automobile Dealers' Association took place Tuesday night. The party went to Ferncroft inn, Newburyport, where dinner was served at 6. President J. H. MacAlman acted as toastmaster and about everyone present had something to say.

Rowe Refuses to Run—With the approaching annual election of officers of the Automobile Club of Maryland, President H. M. Rowe has announced that he would refuse to accept a renomination or a reelection, which the club members are anxious for him to accept. Within the past year or so the Maryland club has gained national repute for its aggressive policies and all-around work and much of the initiative work has been done by Dr. Rowe.

Another Hoosier Sociability—Elated over the success of the recent run to Mudlavia Springs, Ind., and return, Indianapolis owners are arranging another sociability run. It will be held Saturday and Sunday of this week and the destination will be French Lick. The route will be the same as that followed in the reliability run of the Indianapolis Automobile Trade Association last year. It is about 143 miles long and lies through Franklin, Columbus and Seymour. Returning, the route will be through Bedford and Martinsville. Arriving at French Lick, the drivers will participate in a hill-climb Saturday afternoon, and Thomas Taggart will give a silver trophy to the driver winning the event. Carl G. Fisher has offered a similar prize to the winner of the sociability run. There will be two classes of entries, one for cars costing $2,000 and less and the second for cars costing from $2,001 and upward. One of the features of the run will be that no car will be permitted to pass the pilot car, which will insure a reasonable speed limit.

Gives Car to Firemen—Captain William Mitchell Lewis, president of the Mitchell Motor Car Co., of Racine, Wis., has presented a 1910 Mitchell four-cylinder roadster to the Racine fire department for the use of Fire Marshal James Cape. Some months ago Mayor A. J. Horlick made a gift of a 1909 Mitchell roadster to the Racine police department, on condition that the city of Racine purchase a similar car for the fire chief. The municipal officers have been slow to act and Captain Lewis made the gift unconditionally.

Floral Parade a Frost—Kansas City's motor flower parade was something of a fiasco, only twenty-seven cars appearing at the start laden with posies. There is a deplorable lack of unanimity among the members of the Automobile Club of Kansas City and this, working with a spirit of antagonism that has developed against the Kansas City Motor Dealers' Association, ruined the pageant. Because of a shortage of entries in some classes several prizes had to be returned to donors. A $100 prize offered by the Automobile Club of Kansas City for cars decorated solely with flowers went to Bruce Dodson's Pope-Hartford; $100 given by the Old Yorke Investment Co. was awarded to Dr. M. E. Hartman, whose Buick with other decorations had a stork fastened over the radiator with a doll baby suspended from the bill; the $100 of the Kansas City Star for electrics went to Mrs. Fletcher Cowherd, Jr., whose Rauch & Lang was arranged in the shape of an immense flower basket, handle and all, and filled with natural My Maryland roses.

Plan a Sociability Run—The Long-Histed Motor Car Co., of Kansas City, agent for the American-Simplex, has sent a pathfinder out of the city for the Simplex sociability run, of 1 day's duration, which it conceived. The schedule of the pathfinder will be kept secret and a cup awarded to the car making the nearest time. The run probably will be pulled off October 24 with Excelsior Springs, a resort about 40 miles distant, as the terminus.

Lansing Regulating Garages—A new ordinance has been drafted for presentation to the common council at Lansing, Mich., to regulate garages and the storage of gasoline in such places. The proposed ordinance provides that no smoking shall be allowed in garages and that all lights shall be extinguished before the machines are allowed to enter the buildings. No torches, matches, or motor car lights will be permitted in the buildings and when gasoline is stored in them incandescent lamps must be used for lighting purposes.

Would Exempt Physicians—It is probable that the next Wisconsin legislature will be asked to amend the law regulating the speed of motor vehicles to exempt physicians when it can be conclusively proven that they are exceeding the limit in the interest of human life. At Madison, the state capital, last week, the district attorney prosecuted Dr. Charles Allen and after obtaining a conviction, pleaded that the fine and costs be remitted, which was done by Judge Donovan. Both judge and prosecutor suggested the proposed amendment. Dr. Allen drove at the rate of 26 miles an hour to get to the bedside of a patient.

Denver Show Problem—A meeting of the motor car dealers was held last week at the Denver Motor Club for the purpose of fixing upon a date for the Denver show. The show committee announced that the only available date open at the Auditorium is the week of March 21, and the manager of the building asked that the club decide at once if that date is suitable, as other organizations are anxious to occupy the building at that time and he will be compelled to close with one of them if the club does not contract for that week. Considerable objection was made to this date, as it was thought it would be too late in the spring and practically all the dealers would have their output sold by that time. The Union stock yards coliseum was also proposed, but the location was considered too

far out. It was finally decided to refer the matter to the show committee, which was authorized to call another meeting of the dealers at an early date and report further developments.

Scenic Highway Planned—The survey of a new scenic highway has just been completed from Carrizozo, Lincoln county, N. M., to Roswell, N. M. The county of Lincoln has made an initial appropriation of $2,500, and Chaves county will make an additional appropriation. Work on this road is to be conducted simultaneously with work on the scenic highway from Santa Fe to Albuquerque and from Santa Fe to Las Vegas.

New Milwaukee Directors—At the annual meeting of the Milwaukee Automobile Club the following-named directors were elected: Two years, Matthew C. Moore and C. W. Norris; 3 years, Clarke S. Drake, Christian Scholtka, M. W. Pipkorn, J. E. Farber and J. F. Schreiber. Officers will be elected at the next meeting. President Clarke S. Drake's report showed that the membership now is 355 and the assets are $9,000. The cash balance on October 1 was $2,634.29, and in addition the club owns 3 acres of land purchased for a clubhouse site. Mr. Drake urged immediate action toward the erection of the building.

Big Wisconsin Registration—On October 1, 1909, the Wisconsin department of state had issued 9,425 licenses for motor cars. The registration this year has been unprecedented. The law licensing cars went into effect on July 1, 1905. On August 15, 1906, 3,852 cars were registered; on December 31, 1908, 6,192 licenses had been issued. This year more than 3,300 cars have been registered. Of the total registration, Milwaukee claims nearly 4,000 cars. One-seventh of all cars are owned by farmers. The total investment is $12,000,000. Cars ranging in value from $1,250 to $1,500 hold first rank in number of licenses.

Hartford's Sociability Rules—The rules of the sociability run and prize contest of the Automobile Club of Hartford, of Hartford, Conn., to be held in connection with the opening of the Berlin turnpike October 22 are announced. Returning from Berlin, the terminus of the new 7-mile stretch, State Highway Commissioner MacDonald will drive to the Hartford end of the stretch at a speed which he deems essential to the welfare of life and limb, the roads and the like. His time will be taken and placed in a sealed envelope at the Hartford terminus of the 7-mile road. Ten minutes after his departure entrants will be started at 1-minute intervals in an endeavor to approximate the pace set by the commissioner. Each entrant will have a score card with time of starting filled in, and, on arrival at the Hartford end of the road, the time of arrival will be filled in and the cards deposited in a sealed box. Then the elapsed time of each car and entrant will be computed, and the one coming the nearest to the commissioner's time, either over or under, will be the prize winner.

Enter French Test—At the present time an encouraging number of entries have already been received by l'Auto, of Paris, for its winter reliability trials, which are to be held in December. The cars thus far entered consists of three Sizaire-Naudins, three Gregoires, three Delages, three Barre de Niorts, three Doriot-Flandrin-Parants, one Hurtu and one Fouillaron.

Chauffeur Is Fined—The second and heaviest fine imposed under the new Wisconsin law curbing the borrowing chauffeur resulted from the conviction of F. W. Miller, of Milwaukee, of the charge of using the car of A. J. Monday, motor car enameler and painter, Milwaukee, without the owner's permission. The fine amounted to $50. The machine was damaged about $40.

Impromptu Meet at Baraboo—Owners at Baraboo, Wis., held an impromptu race meet at the Sauk county fair grounds Saturday, principally to test the merits of claims of Orvil Philbrick, owner of a model T Ford, and R. W. Protheroe, owner of a model 10 Buick. The Buick won both heats, at 5 miles each, in 7:47 and 7:41, respectively. The Ford's time was 7:48 and 7:50⅘. E. S. Johnston in a Kissel won the relay race.

Fame For Reeves' Boys—First honors in the decorated parade at Yonkers, N. Y., were awarded to Clifford and Robert Reeves, the children of Alfred Reeves, general manager of the American Motor Car Manufacturers' Association, who represented Cook and Peary. The affair was held in conjunction with the Hudson-Fulton celebration. The float on the Maxwell car represented an arctic scene with the north pole in full view surmounted by an American flag with Teddy bears climbing to the top. There were polar bear decorations, and icicles and snow galore. Mr. and Mrs. Reeves in black furs represented Esquimaux, while the two youngsters in full snow-white arctic costumes, represented the north pole explorers.

Deficit at Lowell?—It has been stated by some of those who ought to know that when the books are balanced up after the final details are settled that there will be a deficit of $10,000 as a result of the races at Lowell, Mass., last month. This will be surprising news to those who figured that the thousands of people present meant a handsome profit.

After a Car-Wrecker—The Colorado Springs Automobile Club, of Colorado Springs, Colo., has joined hands with the police in an effort to put a stop to the practice of unknown persons who have been stealing cars within the last few weeks, and after using them for joy rides, turned them over in ditches or wrecked them against telegraph poles. Several cars have been thus smashed recently and the fact that no one has been injured leads the police to believe that the wrecking was done through malice. The club will offer suitable rewards for the arrest and conviction of the culprits.

Bay State Dates Changed—The Bay State A. A., of Boston, has sent out its entry blanks for the annual endurance run which it proposes to carry out this month. The date was originally set for October 22-23. This has been changed to October 21-22. The club expects to have at least twenty-five cars in the contest. Instead of going up through the mountains as heretofore the tourists will go the first day along the south shore and touch Rhode Island at two or three places. The next day they will go along the north shore and then across to New Hampshire and back. The mileage will be something like 225 each day. A technical committee will then go over the cars and try to pick a winner.

MRS. H. J. WITTMAN, WHO DROVE STUDEBAKER E-M-F IN KANSAS CITY RUN

TIRE TOOLS THAT LIGHTEN MOTORIST'S WORK

NO matter whether a motorist is mechanical and able to make ordinary repairs on his car, there is one branch of the art of caring for a machine in which even the veriest tyro soon learns his lesson, for it does not require mechanical knowledge on his part to become proficient. It sometimes takes a lot of perseverance to attain this proficiency, but the man who can stick to the job and not lose his temper will master the art of taking off and putting on tires and repairing them sufficiently to complete his journey. Most motorists already have a smattering of knowledge concerning the care of tires when they first take up motoring, an heirloom of the old cycling days when such knowledge was drummed into them by bitter experience on the road. But even if the groundwork is not there it does not take long to master the task of changing tires, for the various tire concerns have had inventive minds working on tools to make the work easy, the result being that the modern motorist finds ready for him a kit in which nearly every possible contingency is provided for.

It used to be the boast of the Dunlop company in the cycling days that the only tools needed to make a change were the hands, but those days are past, as one readily can appreciate when trying to handle heavy casings with the bare hands. Even with the demountable rim which is coming into great popularity, at least one tool is necessary. Therefore your average motorist takes great interest in any new device that is likely to minimize the labor of tire-changing. Probably the Michelin people have given as much thought to lightening the labor of the consumer as any other concern and in the assortment of tools it has to offer one finds many clever ideas.

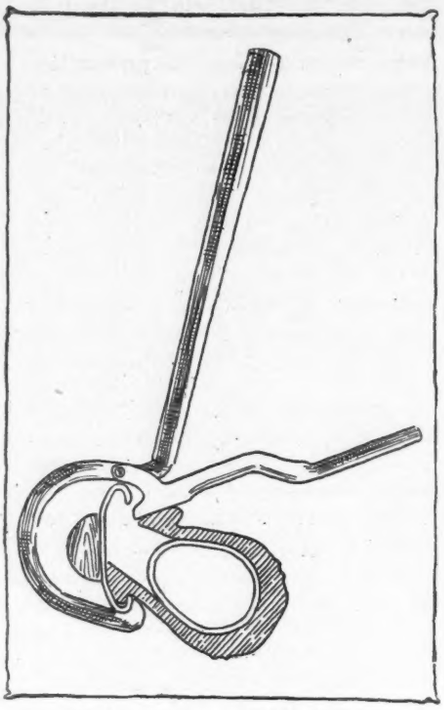


FIG. 1—NEW AUTOMATIC LEVER

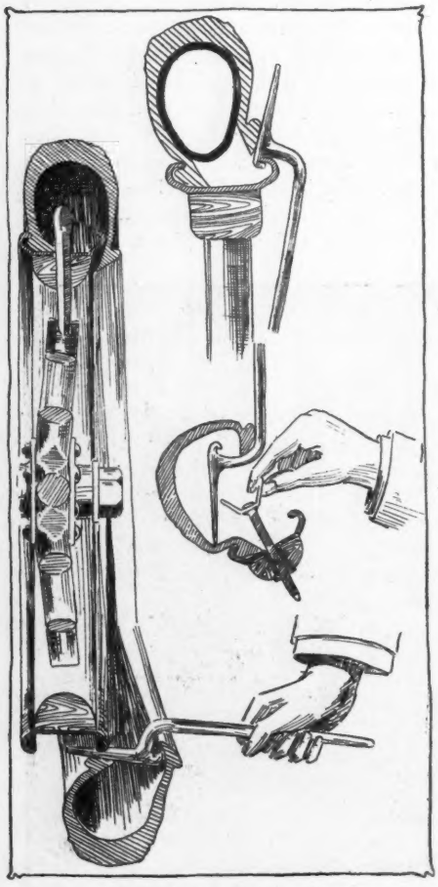


FIG. 2—MICHILIN ELBOW LEVER

Automatic Lever New Idea

One of the new things the Michelin people have brought out is an automatic lever, Fig. 1, which is designed for the purpose of forcing the outside bead of the casing over the edge of the rim, a task not any too easy at best. This lever, as may be seen by the illustration, consists of a straight bar at the end of which is a three-quarter circle. The end of this semi-circle that is not part of the straight bar has a lip on it, while at the end of the bar where the semi-circle begins there is a hinged lever. In working it the tool is looped under the rim and the hook at the end of the semi-circle grabs the inside bead. The auxiliary lever then comes into operation, coupled with the straight bar. As the bar is pulled down the auxiliary lever is pulled up and the two working together force the outside bead past the flange or channel and permits it to drop into place. The use of the tool prevents the possibility of the inner tube being injured and as seen in operation at the Chicago branch, it seems to accomplish its purpose most acceptably.

Another useful Michelin tool is the elbow lever, Fig. 2, which dates back farther than does the automatic. This elbow lever is used to complete the operation of putting the inside bead of the casing in place, a task which sometimes tries the temper of even the oldest of motorists who know that the best work can be accomplished by keeping cool. In operating this elbow lever the inside bead of the casing is put in place as far as possible by hand, after which the tool is utilized, being introduced 6 inches from the place where the bead does not fit over the clinch of the rim. Pushing the lever downward the outside bead glides into the elbow which forces another portion of the bead into the rim. By repeating this process the entire inside bead soon is in place. Another use for the elbow lever is to keep that part of the outside bead in place when mounting, which is forced over the clinch of the rim first. The bead of the casing may be held in place by the spur lever while the hook of the elbow lever is adjusted over the outside clinch of the rim and the plain end of the elbow lever placed against one spoke of the wheel. To free the elbow lever from this position the plain end is drawn toward the operator and pushed upward. Another use for the elbow lever is to insert and remove security bolts and valve, while the plain end of the lever may be used as an ordinary lever in mounting or dismounting tires.

Spur Lever Handy Tool

The spur lever, Fig. 3, is declared to be a handy tool in that it is a safeguard against pinching the inner tube between the bottom of the rim and the end of the lever, the spur preventing the lever from injuring the tube by entering too far under the casing. The operation of this tool is best described by illustrations, but suffice it to say that if it is desired to put the outer bead in place, the lever, with the spur in front, is pushed under the casing until it is checked by the clinch of the rim after which the lever is lifted without being forced, the spur all the time being pressed against the rim. Then the plain end of the elbow lever is inserted at the side of the spur lever in order to keep in place that part of the bead which is forced over the clinch of the rim. Then the elbow lever is held in place with one hand and the rest of the bead is worked

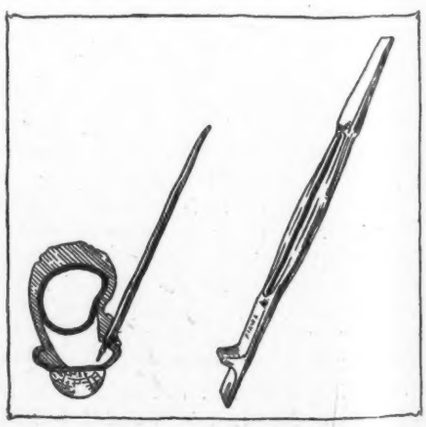


FIG. 3—THE SPUR LEVER

over the wheel rim with the other hand.

Most motorists are familiar with the Michelin forked lever, Fig. 4, which is designed to facilitate the operation of replacing the inner tube and which is of particular value when large tires are being handled. In working this the two forks of the lever are inserted under the outside bead after the inside bead is in place, being put directly over the valve hole and forced firmly against the outside clinch of the rim. By raising the handle the outside bead is forced upward, leaving plenty of room in which to work.

Mastic Used For Punctures

But tire tools are not the only things devised by Michelin ingenuity for the relief of motorists. An elbow lever, spur lever or forked lever will not repair a puncture and a tire without air is of little use to a motorist. Therefore a method of repairing punctures—a sort of first aid to the injured—has been devised in the shape of Michelin mastic which is declared by those who have used it to be far superior to the old way of repairing punctures. Of course when one hasn't a can of mastic in his kit he is not entirely lost, for nearly everyone knows the old way: Clean the surface around the break with sand paper or fine emery and apply a coat of cement. Allow this cement to become nearly dry and then apply another coat. After this has become dry enough to be adhesive put on the patch, being sure to use one large enough to cover the hole well. Press the patch down hard against the tube and allow it to stand until dry. Powder lightly with talc before putting inside the casing.

This is a slow operation at best and those who have tried mastic say that it is almost as quick to repair a tube as it is to take out a spare and put it in the casing. Mastic is not a liquid but a plastic cement; in fact it looks like a wad of pure rubber. In repairing a puncture with it the edges of the hole are cleaned with gasoline. Then the mastic, which has been kneaded into an oblong shape like one would a piece of gum, is inserted through the puncture. The tube is laid down, hole upward, on a flat surface and by pressing the mastic a sort of a double-headed rivet, Fig. 5, is formed inside and outside of the tube. As the tube is inflated the air pressure forces the excess mastic outward between the tube and inside of the cover, preventing leakage, while the heat generated by driving hardens the mastic.

Repairs Cuts in Casing

On a recent tour the writer had occasion to repair eight punctures with this mastic and he did not take time to strictly follow the directions. Instead he scraped the surface of the tube with a knife to roughen it and give a holding surface, not even stopping to cleanse with gasoline. The mastic was jabbed on like a piece of gum after a coat of cement had been applied and without waiting for the job to thoroughly dry the repaired tube was stuck back in the casing. In not one instance did this hurried patch come loose or leak and a later examination showed that the patches were almost impossible to pull off. Mastic also may be used for repairing cuts in casings, although in this event more care should be exercised. After the gasoline treatment the cut is coated with liquid cement, and after it has dried a second coat is put on. While this is still tacky the mastic is forced into the cut until there are no unfilled spaces. A little excess mastic will not hurt, for it contracts somewhat in hardening. When the cut is properly filled the edges of the cut are forced together and held a few moments until the mastic sets. It is best after this operation to allow the tire to stand 5 or 6 hours or longer if possible in order that the mastic may harden properly.

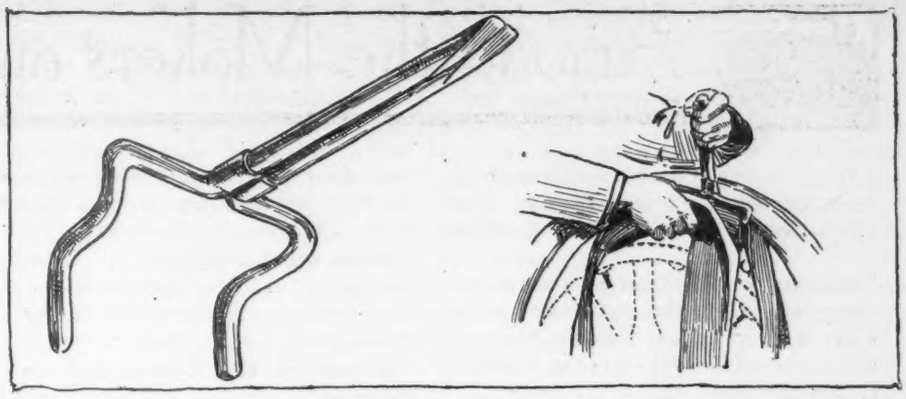


FIG. 4—FORKED LEVER FOR REPLACING INNER TUBES

Demountable Rim Changing

Demountable rims are great time savers and the operation of putting them on or taking them off is simple. When a puncture occurs and it is necessary to remove the rim and deflated tire, the wheel is jacked up and turned until the tire valve is at its lowest position. Then the eight wedge bolt nuts are removed with the brace socket wrench and the thin edge of the spur lever inserted between the removable rim and the permanent band near the highest wedge clamp. By using slight leverage the clamp may be removed with the fingers. After withdrawing the remaining clamps and making sure the tire valve still is at its lowest position the tire and rim are pulled off bodily by grasping the tire at its upper half, care being taken to lower gently in disengaging the tire valve.

In putting on the spare rim the wheel is turned until the valve hole is at the top. Then the rim is lifted high enough to drop the valve into the valve hole, care being taken to seat the rim properly. After this is done the wedges, clamps and nuts are replaced and tightened with the fingers only. Following this the nut nearest the valve is tightened with the brace socket wrench, and after this the other nuts are tightened in order. When all the nuts have been partially tightened the operator goes over them again in order with the brace socket wrench and sees that all the nuts are seated firmly.

FIG. 5—USING MASTIC FOR PUNCTURES

Some Tire Suggestions

See that the tires are pumped up hard at all times, and when the rear end of the car is heavier than the front end it is advisable to carry more pressure in the rear tires than in the front ones. Favor the tires as much as possible on bad roads and turn corners at moderate speed, running especially slow on stony roads so as to prevent stone bruises. If a tire shows signs of undue wear or appears defective in any way, the matter should be taken up with the maker of the tire without delay. In case any motorist does not seem to be able to secure satisfaction from the tire makers, he should write to the manufacturer of his car. Tires when well worn may be retreaded and thus tires almost as good as new may be had at a reasonable price. Never go on a run of any kind without an extra inner tube, and never go on a tour without an extra outer shoe, or shoes, as the case may be. Rubber has many enemies—light, water, oil, heat, gasoline; all these tend to deteriorate it beyond the wear and tear of ordinary travel. When the car is not being used the wheels should be jacked up and the car left in a cool, dark place if possible. For very muddy or snow-covered roads nothing is so satisfactory as tire chains, which may be easily put on or removed as needed. In attaching chains to the rear wheels, however, they should be drawn sufficiently close to the tires so as to keep them well away from the driving chains. Tires should be removed occasionally for the purpose of thorough examination. This may take a little time, but it is time well spent. Occasionally soapstone has a tendency to collect and form hard particles which may chafe a leak in the tube.

Among the Makers and Dealers

Wing in Truck Business—Frank Wing, formerly with the Buick and Regal companies, now is allied with the Randolph truck.

Empire Invades Denver—The Denver agency for the Empire has been taken by A. T. Wilson, who has been handling and will also continue to handle the Kisselkar at 1544 Broadway.

Handling Only Great Westerns—The Great Western Automobile Co., of Peru, Ind., has made agency arrangements with Joseph Rice, of Kramer, Ind., to handle Great Western cars exclusively.

Horseless Age Sold—One of the pioneer motor journals of the country, Horseless Age, has been purchased by Fred J. Wagner, formerly of Motor Age, and C. B. Ames, of Motor. The policy and plans of the new owners have yet to be announced.

Two New Omaha Garages—A contract was let last week for the erection of two new brick garages in Omaha, Neb. The garages will have a total frontage on Farnam street of 97 feet. The Buick company will occupy a space 75 by 132 and the Omaha Auto Co. will have an adjoining building, 22 by 132. The garages will be built of brick, one story, and will cost $15,000.

Tygard Engine Locates—The Tygard Engine, which was incorporated under New Jersey laws in June, with a capital stock of $250,000, has located a factory at the corner of South Twenty-sixth and Sarah streets, Pittsburg, Pa., where it is installing machinery preparatory to manufacturing the Tygard four-cycle double-action motor car engine and also a rotary steam engine which has turbine speed but uses the steam expansively. The officers are: James W. Tygard, Plainfield, N. J., president; Fred C. Tygard, Pittsburg, Pa., vice-president and secretary, and Asa F. Randolph, Plainfield, N. J., treasurer.

Takes On the Regal—C. S. Cummings, manager of the Metropolitan Motor Car Co., of Seattle, has secured the agency for the Regal.

Also Has the Empire—The Empire car is the latest to be represented in Boston. This car has been taken on by the S. M. Supplies Co. that handles the Inter-State.

Selling Wintons in Canada—The British Columbia Automobile Co., of Vancouver, B. C., will handle the Winton on the Canadian side of the line during 1910. Alex E. McCredy, of North Yakima, will represent the Winton motor in Yakima county, Wash., and vicinity for 1910.

Bought By General Motors—Announcement is made that the General Motors Co. has purchased the Jackson-Church-Wilcox plant at Saginaw, Mich. This firm was one of the largest manufacturers of parts in the country and was organized 3 years ago. The capital is $60,000 and 200 skilled workmen were employed. It is understood that the General Motors Co. will enlarge the plant.

Chicago Thomas Branch Locates—A deal has been closed whereby the E. R. Thomas Motor Branch Co., of Chicago, has acquired the property at the corner of Twenty-third street and Michigan avenue on a long-term lease. Work of constructing a three-story building will begin at once. The building is to be of fireproof construction and three stories and basement. The top floor will be given over to the service department. On the second floor will be located the salesroom for used cars and storeroom. On the first floor will be the salesroom proper and offices, and in the rear the garage. The Chicago branch is temporarily located at 1323-1325 Michigan avenue.

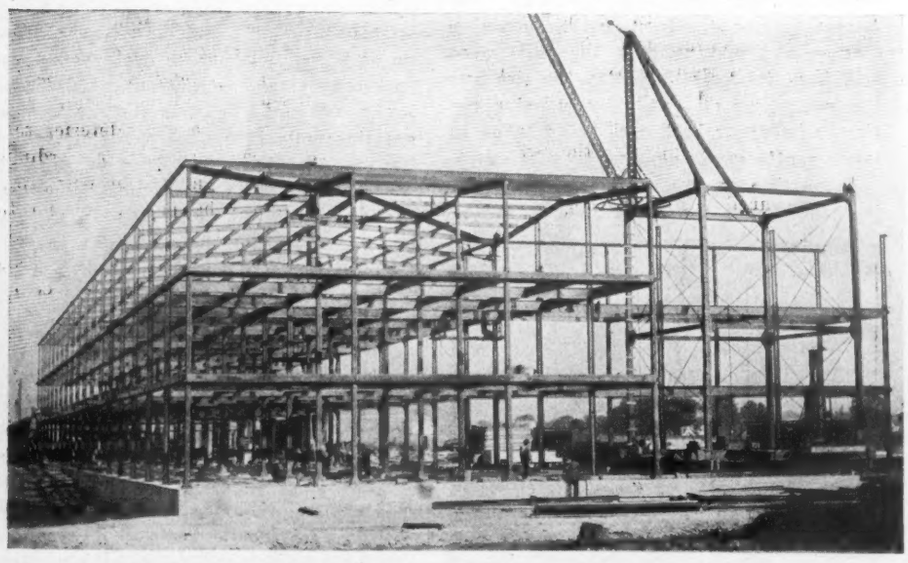
P. W. Meyers Dead—P. W. Meyers, after a prolonged illness, died recently. He was former secretary of the Auto Pump Co., of Springville, N. Y.

Snedeker Sentenced—Orlando Snedeker, of Chicago, Ill., was fined $100 and costs, with the alternative of 60 days in the house of correction at Milwaukee last Saturday on the charge of stealing tires. Several Milwaukee owners suffered from the depredations. It is claimed that Snedeker sent the tires and casings from North Milwaukee station to Chicago, where he owns a small repair shop.

Alma Wants Cameron Plant—A committee has been appointed from the board of trade of Alma, Mich., to take whatever steps it sees necessary for the securing of the plant of the Cameron Car Co., now located at Beverly, Mass. It may be necessary to secure the factory, but the sentiment is in favor of the bond issue. Seventy-thousand dollars already is in sight for the securing of the plant.

Building An Addition—The Moline Automobile Co., of East Moline, Ill., maker of the Moline, is building a large addition to its present plant. Masons, bricklayers and carpenters are rushing to completion a large four-story brick building which will provide 600,000 cubic feet of additional floor space. It is to be used chiefly for chassis building and assembling. In the other shops there is an air of activity. Each department is working to the limit of its capacity in an endeavor to keep pace with the avalanche of orders.

Another Inter-State Addition—The Inter-State Automobile Co., of Muncie, Ind., has now under course of construction an immense addition to its already large plant. The three floors of the new building are 430 feet long and 66 feet wide, which includes a spur running out from one end of the building. Its total floor space will be 85,000 square feet, which added to the old plant will make a total of over 150,000 square feet of floor space. The capacity and output has been increased to five times the number of cars manufactured in 1909 and the company expects to manufacture 2,500 cars for 1910. A spur track will run the entire length on the outside of the building and a large shipping platform will be made for handling shipments without delay. The steel work shown in an accompanying illustration was erected in less than 2 weeks and the same general fireproof construction will be used as used in other buildings. This is an all-steel and window construction on the sides with steel frames, and window and brick con-



STEEL FRAMEWORK OF LATEST ADDITION TO INTER-STATE PLANT AT MUNCIE, IND.

struction on the end. This building will be devoted to painting, upholstering, finishing and final assembly.

Smith Garage in San Diego—The garage of Wilson S. Smith, the Franklin dealer in San Diego, Cal., is a new and up-to-date structure.

Increases Falcar Order—C. F. Van Sicklen, assistant sales manager of the Fal Motor Co., of Chicago, who now is driving through Oklahoma visiting agents, sold 100 cars to C. F. Louk, of Omaha, which gave him a record of 250 cars in a week.

Selden Addition Being Built—Work is now in progress on the new factory of the Selden Motor Vehicle Co., of Rochester, N. Y. The plant will consist of one main building fronting on University avenue, 300 feet long, two stories high and with a large wing 100 by 136 feet extending back to the railroad tracks. To this will be added a power house and other buildings.

Tacoma Opening—The Tacoma Motor Car Co., agent for the Oldsmobile in Tacoma and southwestern territory, has opened its new quarters at 750-2 South C street. Another new Tacoma concern is the Northwestern Automobile Co., which is located at North Twenty-first and Fife streets. The Automobile Supply Co., of Tacoma, has recently incorporated and moved into its new quarters at 757 South C street.

To Coast by Express—Shipping carloads of motor cars from Cleveland to Los Angeles by express is a rather expensive proposition, but that's the way machines are leaving the Stearns factory in the former city. Coney C. Slaughter, the Stearns agent in Los Angeles, ordered that his cars be sent by express—the quickest way, irrespective of cost. Not content with this, he wired the express companies of his intentions, and inside of 2 hours after the receipt of his wire his shipment was headed westward—at an expense of $1,000.

Big Supply Company Organized—The Buick Auto Supply and Garage Co., recently incorporated for $100,000 under the laws of Maine, has opened offices and has located its executive department in the Bearinger building in Saginaw, Mich. The purpose of the company is to handle supplies and accessories directly from the factory to the consumer and to conduct a series of garages in all the principal cities of the United States. Each state company will be a separate organization and will be known as the subsidiary company of the Buick Auto Supply and Garage Co., of Saginaw, Mich., which will operate as the parent or holding company. Plans are complete for the organization of the subsidiary companies for Michigan, Ohio, Indiana and Illinois, and representatives of the Saginaw company already are securing options on the leading garages in the principal cities in these four states. The board of directors includes Judge William G. Gage, Mayor George W. Stewart, George S. Lockwood, David D. Buick, Thomas D. Buick, George B. Brooks, William F. Paine, Fred E. Button and Benjamin G. Appleby.

Another Branch For Miller—Charles E. Miller will open a branch at Atlanta, Ga., on or before November 1, in which a full line of motor car supplies will be carried.

Parker Succeeds Uhl—Gus Uhl has sold his interest in the Standard garage at Toledo to R. A. Parker, who will conduct the business along the same lines. He will handle the Croxton-Keeton, and will also secure another popular-priced car.

Wells Buys Controlling Interest—D. E. MacCarthy, president of the General Mfg. Co., Elkhart, Ind., has sold controlling interest in the company to A. T. Wells, Elkhart, Ind. This company was organized 3 years ago by Mr. MacCarthy and has been engaged in the building of clutches, transmissions and control sets.

In Business at Portland—The Western Auto Co. is the latest concern to enter the field at Portland, Ore. Elliott E. Brett has assumed the management of the new concern. Temporary quarters have been secured with the Covey Motor Car Co. at Seventh and Couch streets. The Knox car will be the company's top-liner.

Change of Representatives—Société Française des Roulements à Billes, which manufactures the R B F ball bearings, announces that Lavalette & Co. are no longer its representatives in the United States. The International Engineering Co., of 1779 Broadway, New York, is now the sole and exclusive agent for the bearings.

Graphite Company Enlarges—Another very substantial and commodious building is to be added to the Niagara Falls, Ont., branch works of the International Acheson Graphite Co. The structure is to be 50 feet wide by 105 feet long. The building will contain a new grinding plant, in which the lubricating, electrotype, and other grades of powdered graphite will be prepared for market. It also will contain a stock room for package goods, such as graphited greases, powders, etc., while a new shipping room will make it most convenient for promptly filling orders.

Big Order From Coast—C. P. Kiel, of San Francisco, Cal., president of the Kiel & Evans Co., has closed a deal with the Michigan Buggy Co., of Kalamazoo, Mich., for a $50,000 consignment of the new motor cars which the local company will soon place upon the market. This is the first order received for the cars, which will be ready for delivery about January 1.

Will Handle P & S—The Bennett-Williams Co., composed of L. H. Bennett and I. R. Williams, located at 1530 Clarkson street, Denver, will be the western distributor for the Palmer & Singer and Simplex. Its territory is Colorado, Wyoming, New Mexico and Nebraska. The company has purchased the garage and salesroom of the Denver Automobile Co., adjoining the Fritchle factory on Clarkson street.

New Fort Wayne Company—The Brosius-Sesline Automobile Co., has been incorporated at Fort Wayne, Ind., and will handle the Reo and Maxwell cars. W. O. Sesline will act as distributor for the Maxwell in nine counties and for the Reo in twelve counties. The officers of the new company are: W. O. Sesline, president; Jesse Brosius, treasurer, and Andrew and Harry Brosius stockholders. The headquarters of the company will be 117 East Columbia street.

McKeen Company Election—At its annual meeting held in Jersey City, N. J., the McKeen Motor Car Co., of Omaha, elected the following officers: W. R. McKeen, president; A. L. Mohler, vice-president; W. Y. Loucks, secretary. The directors elected are: W. R. McKeen, A. L. Mohler, T. M. Orr, N. H. Loomis and Alex Millar. Following the meeting in Jersey City a meeting was held in Omaha at which W. H. Sanford was elected treasurer of the company, succeeding the late Frank D. Brown.

SMITH GARAGE AT SAN DIEGO, CAL., HANDLING THE FRANKLIN

Brief Business Announcements

Houston, Tex.—The Imperial Motor Car Co. has been organized with J. H. Bright as manager.

Lansing, Mich.—The Outing Motor Co., of Detroit, has been incorporated with a capital stock of $10,000.

Lansing, Mich.—The Clark-Carter Automobile Co., of Jackson, has been incorporated with a capital stock of $100,000.

New York—The Selden is to be represented in this city by the Cloud-Marts Co. A salesroom is to be opened at 1871 Broadway.

Lansing, Mich.—The Olds Motor Works, of this city, has filed a notice of the increase of the capital stock from $2,000,000 to $4,000,000.

Harrisburg, Pa.—Articles of incorporation have been filed by the Ewing Automobile Co., of Easton, with a capital stock of $10,000. L. E. Ewing, of Cleveland, O., is named as the incorporator.

Burlington, Ia.—M. R. Vaughn, who is the local agent for the Moline, has bought the business formerly conducted under the name of the Burlington Auto and Supply Co., of Front street, and is to conduct the business in future.

Augusta, Ga.—T. R. Cobb, who is well known as a baseball player, is to go into the motor car business with the close of the baseball season. He has been appointed agent for the Hupmobile, and has already secured quarters at 647 Broad street.

Toledo, O.—L. E. Manley has turned over the local branch of the Oldsmobile company to W. E. Brearly and in the future is to devote all his time to the selling end of the Olds-Oakland company, of Cleveland. Mr. Brearly also has an interest in this concern.

Trenton, N. J.—The Mitchell Sales Co., which has a garage on East State street, is looking out for a new site. The present garage is located on the land which has been purchased for the erection of the new city hall and it will be necessary to vacate in the near future.

Brooklyn, N. Y.—A new supply house has been opened here. It is to be known as the Wenz-Ludy Equipment Co., and is to make its headquarters at 1225 Bedford avenue, corner of Halsey street. The members of the new concern are William A. Wenz and A. J. Ludy.

Cleveland, O.—The Cuyahoga Motor Car Co. has sold its garage to A. Jacobs, who will conduct this business in the future. In the future this company will be known as the Cleveland Electric Vehicle Co. and will devote its entire attention to the new batteries and cars which it has recently put on the market. The company has taken quarters in the building of the Standard Automobile Co. on Huron road.

Hartford, Conn.—A. E. Kilby, of 1403 Main street, has been appointed local agent for the Jackson.

New York—J. H. Cothran and H. E. Wagner have joined the selling forces of the Wyckoff, Church & Partridge Co.

Kansas City, Mo.—G. A. Kohn, of the Eagle Garage, 704-706 Prospect street, has been appointed agent for the Elmore.

Milwaukee, Wis.—The Kissel Motor Car Co., of Hartford, has increased its capital stock from $200,000 to $400,000.

Denver, Col.—The old Palace livery stable on Cheyenne street is shortly to be remodeled into a garage and salesroom for the local agency of the Studebaker.

New York—The Twentieth Century Mfg. Co., wholesale dealer in lamps at 19 Warren street, has made a settlement with its creditors at 25 cents on the dollar cash and the agreement has been confirmed by Judge Adams.

Brooklyn, N. Y.—In the future the interests of the Studebaker company are to be looked after in this borough by the Carpenter Motor Vehicle Co., of 1239-1243 Fulton street. A number of changes have been made to the garage.

Taylor, Tex.—A new company has recently been incorporated with a capital stock of $10,000, and is to be known as the Central Texas Auto Co. A. A. Zizinia is to be the president; Howard Bland, vice president; Owen R. Frame, secretary, and Dan Murphy, treasurer. The company is to act as agent for the Buick throughout the entire central portion of Texas.

RECENT INCORPORATIONS

Richmond, Ind.—Pilot Motor Car Co., capital stock $100,000; to engage in the manufacture of motor cars. Incorporators, G. E. Seidel, C. H. Kramer and H. M. Kramer.

Jersey City, N. J.—Tate Gas Electric Motor Vehicle Co., capital stock $100,000; to manufacture motor vehicles, motor boats and aerial machines. Incorporators, J. L. Tate, C. E. Tate and J. L. Tate, Jr.

Elizabeth, N. J.—Mono Motor Car Co., capital stock $300,000. Incorporators, W. H. Wood, H. T. Eaton and Charles Roberts.

Brockton, Mass.—Brockton Rubber Tire Co., capital stock $50,000; to manufacture and deal in rubber tires. Incorporators, W. O. Flagg, C. G. Nelson and McLeod & Sweet.

Pittsfield, Mass.—Berkshire Auto-Car Co., capital stock $120,000; to engage in a general motor car business. Incorporators, J. McQuaid, C. F. Coogan.

Dallas, Tex.—Roberts Motor Car Co., capital stock $10,000. Incorporators, M. C. Roberts, M. I. Lindsay and Walter Lechner.

Nashville, Tenn.—Shelby Automobile Co., of Sullivan county, capital stock $10,000. Incorporators, H. W. Reynolds, A. D. Reynolds and H. H. Shelton.

New York.—Madison Square Taxicab Co., capital stock $3,000, to operate motor cars and other vehicles. Incorporators, D. C. Lewis, A. Wechsler and V. Reichstein.

Houston, Tex.—The Corsicana Motor Co., of Corsicana, has filed a notice of the decrease of its capital stock from $6,000 to $3,000.

Pontiac, Mich.—Announcement has been made by the Oakland Motor Car Co., increasing its capital stock from $300,000 to $800,000.

Oakland, Cal.—B. B. Bretner, of Los Angeles, has been appointed agent in this city for the Ford and will open headquarters in the near future.

Youngstown, O.—A. F. Clause has opened a garage in the rear of 110 West Rayen avenue, and is to act as representative of the Brock electric carriage.

Lansing, Mich.—The Warren Motor Car Co., of Detroit, has been incorporated with a capital stock of $100,000 by Homer Warren, C. R. Wilson and H. C. Walters.

Cambridge, Mass.—A permit has been granted to Moses H. Gullusian, of Chestnut Hill, Brookline, for the erection of a motor car factory and repair shop on Lansdowne street, between Green and Franklin streets. The building is to be in five sections.

New York—A petition in bankruptcy has been filed by the Peerless Specialty Co., of 1876 Broadway, maker of speedometers. This concern is a New York corporation, which was incorporated on June 2, 1908, with a capital sock of $20,000. W. K. Thomas was president and J. S. Ridley treasurer.

Memphis, Tenn.—N. S. Bruce, who was formerly connected with H. A. White & Co., will in the future be associated with the Cubbins Auto Co. This concern is to be known as the Bruce-Cubbins Automobile Co. and will be temporarily located at 187 Court street. The company is to act as agent for the Locomobile.

Utica, N. Y.—A taxicab service is to be installed in this city in the near future. P. J. Schaefer, who is now connected with the Buick company here, is to be the manager of the new enterprise, and has already ordered three cabs from the Buick company. Additional cars will be put on the service as they are required.

Jamestown, N. Y.—The Gurney Ball Bearing Co., which was incorporated recently, has completed the organization with the election of the following officers: President, A. W. Kettle, who is also to act as treasurer; vice-president, B. M. Nichols; secretary, F. W. Gurney. Work is shortly to begin on the erection of a factory building.